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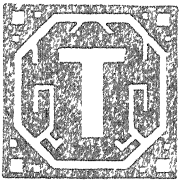
## AUTHOR'S PREFACE



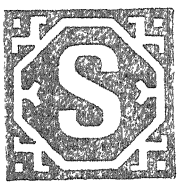
HIS BOOK IS based on a diary that I kept during my frequent trips across Turkmenia. First published in 1949, it was revised and enlarged after I toured several districts of the republic for that purpose in the winter of 1953-54. Still, not every corner of Turkmenia is described here in the exhaustive detail it deserves. The places I visited most and know best are quite naturally dealt with more comprehensively than those I had to learn about from printed matter or by word of mouth.

The book lays no claim whatever to encyclopaedic fullness. I neither intended nor could set myself a task which would require a team of writers. It was my intention to give the reader who has never been to Turkmenia a very general idea of that country, of its flora and fauna, and economy, as well as of the creative labour of its people, who are remaking that former backward outpost of tsarist Russia into a flourishing Soviet republic.

Like the entire Soviet Union, Soviet Turkmenistan is making rapid political and economic progress. Much is changing virtually before people's eyes. Where there was a desert only yesterday, new settlements and towns are springing up today, and the appearance of whole districts and regions is changing with amazing speed.

I hope the exacting reader will not blame me for shortcomings in the book which are due rather to the rapid march of our time than to any oversight or mistake of mine.

*May, 1954*



UNNY TURKMENISTAN is what people justly call this land of generous sunshine and vast arid spaces.

The hot climate is at once the source of Turkmenia's wealth and of many of her economic hardships. Huge tracts of territory—deserts, salt-marshes, *takyrs*—bake in the heat under a cloudless sky.

Everything living thirsts for moisture during the sweltering summer months. But how bountiful the land is wherever there is water! The country gets its best fine-fibre cotton from the Murghab Oasis. There are no grapes sweeter than those grown in the Kopet-Dag Valley. Then there are apples, apricots and musk-melons. The republic cultivates lucerne, barley and wheat. Finally, there is jute: it was always a foreigner in the U.S.S.R. until the post-war years, when it found a home in the collective farms of Tashauz and Chardjou regions. Millions of mulberry-trees have spread their boughs along the fringes of cotton fields, along highways and in special nurseries.

Besides cotton, grain and fruit, Turkmenia produces karakul and wool, oil, ozocerite, bentonite, sulphur, fish, and mirabilite.

Every year brings greater prosperity and happiness to Soviet Turkmenia.

Let us go on a leisurely tour and look at everything this unique and sunny land, which does not easily lend itself to development, can reveal to an attentive and well-wishing gaze.

* * *

The newcomer first sees Turkmenia as a huge desert with hardly any of the habitual signs of life. The common feature is a clayey or sandy plain stretching in all directions under a cloudless sky.

The absence of a permanent carpet of greenery over a large part of Turkmenia is what the unaccustomed eye finds it the hardest to accept, and only the flowering oases with their orchards, fields, settlements and towns dispel the slight feeling of oppression that these vast, sand- or salt-covered tracts of land sow in a stranger.

But oases usually end as suddenly as they begin. The road barely runs into the shade of the gardens, makes a turn or two, straightens out along fences lined with luxuriant fruit-trees, and skirts the settlement and the fields of thickly growing cotton before it again leads out into an arid and barren expanse.

Turkmenia is a huge country. Stretching for nearly 700 miles from east to west, from the valley of the Amu-Darya to the Caspian Sea, and for about 350 miles from north to south, it is almost as big as Spain or twice as big as the British Isles.

Much of Turkmenia, however, is a desert. Even in the most densely populated areas—along the lower reaches of the Murghab and in the northern region of Tashauz—the width of the regularly irrigated tracts rarely exceeds six to nine miles. The desert spreads out on either side of the cultivated lands, which usually lie in a comparatively narrow strip along irrigation canals and rivers.

The Turkmen Soviet Socialist Republic is the southernmost of the 15 Union Soviet republics. Its northernmost point is almost 125 miles lower than the southernmost tip of the Crimean Peninsula, while Kushka, a town in Turkmenia's extreme south, is closer to the equator than even the African city of Algiers.

In the southern regions of the republic, the long periods of abundant sunlight enable the people to cultivate the most valuable varieties of fine-fibre cotton as well as many subtropical plants. Date-palms, olives, pomegranates, persimmons and citrus fruit thrive in the extreme southwest—in the valleys of the Sumbar and the Atrek.

However, though the hot climate is indisputably Turkmenia's wealth, the low annual precipitation is her misfortune. In Ashkhabad, the mean annual rainfall is 7.8-9.8 inches. In other places it is even lower: in Krasnovodsk and Nebit-Dag, for instance, it is

4.3-4.7 inches. A pale blue sky, gleaming like slightly dusty enamel, hangs over Turkmenia for two hundred days in the year.

Turkmenia's agriculture is almcst wholly dependent on irrigation. But compared with the republic's size, the total area of irrigated land is very small—about 1,255,500 acres, or a hundredth part of its territory. Though it is almost as big as the Ukraine, its population is 30 times smaller.

The Kara Kum, one of the world's major waterless deserts, takes up the entire middle portion of Turkmenia. Although it is rightly called a desert, the Kara Kum is not altogether lifeless. Most of the collective-farm pastures are located there; sheep-breeding, along with cotton-growing, forms the basis of agriculture in the republic.

Land is cultivated primarily in the valleys of the Amu-Darya, the Murghab, the Tedzhen, and in the foothills—regions with a more or less reliable supply of water. In addition to cotton-growing, the people inhabiting these regions are engaged in cultivating fruit, vine and melons. Of grain crops they grow sorghum and barley; wheat is grown in the highlands, where unwatered cultivation is possible.

Most of the population lives in the oases, but people also inhabit places with no water or with very little of it, the reason being either mineral deposits or, as in the case of the Caspian coast, the wealth of the sea. There are no fresh-water sources where the towns of Krasnovodsk, Nebit-Dag and Kum-Dag sprang up. The same applies to the settlements in Cheleken and around the Gulf of Kara-Bogaz-Gol. True, in recent years, Soviet scientists discovered sources of fresh water in various spots in West Turkmenia, but that is not enough to offset the shortage.

If all the inhabited localities are marked on a map in, say, green, and all the uninhabited or thinly populated localities in another colour, say, yellow (the colour of the desert), we shall get a massive, yellow oblong stretching southeast to northwest with narrow green strips and dots, representing cultivated fields and habitations, along the edges.

The population is densest in the Murghab Oasis and the northern Tashauz Region. There, the density is as high as in Ryazan or Ivanovo regions of the Russian Federation.

The average density, however, is very low because in the sandy expanses of the Kara Kum there is only one inhabitant to approximately every 100 square miles. In the latter half of the 19th century, when Turkmenia became part of Russia, she had something like one inhabitant per square mile. The population has increased during Soviet years, but the Kara Kum is still one of the least populated areas of the Soviet Union.

The Kara Kum (or the Kara Kum Desert, as geographers call this sandy wilderness) not only occupies a huge area but tends to encroach upon other territory. In certain barren districts, as for instance to the south of Tashauz Oasis or to the north of the lower reaches of the Murghab, traces can still be found of long-forgotten habitations with developed systems of irrigation ditches and cultivated fields. The sands have buried them. The Kara Kum has been on the offensive against cultivated lands for ages, wresting from man his fields, orchards and vegetable gardens inch by inch.

The reverse process began only after the Great October Socialist Revolution. The Soviet people stopped the desert's advance and passed to the offensive themselves.

On May 17, 1918, at the dawn of Soviet power, Vladimir Ilyich Lenin signed a decree allocating 50 million rubles for irrigation development in Turkestan.

In 1921, in *Letter to Communists in the Caucasus*, Lenin's definition of the vital importance of irrigation was: "Irrigation is needed most of all, and will, more than anything else, transform the territory, revive it, bury the past and ensure the transition to socialism."

Construction has been started on the Kara Kum Canal, which will carry the waters of the Amu-Darya to the lower reaches of the Murghab and double the area under fine-fibre cotton in the Murghab Oasis.

The stretch between the Amu-Darya and the Murghab is only the first stage of the project. The plan provides for a second section up to the Tedzhen; this is to be followed by a third section, which will bring the Amu-Darya waters to the Kopet-Dag foothills, including Ashkhabad, the republic's capital.

Besides considerably increasing the crop area, the canal, which will be more than 560 miles long, will favourably influence the climate in the adjoining densely populated regions.

* * *

The Caspian, once the shortest and easiest route to Turkmenia from the west, has always been her door to Europe, so much so that even today, when airways have reduced distances, the Moscow-Ashkhabad plane has to cross the sea in the section between Baku and Krasnovodsk. That gives the passenger about an hour's view of the sea before he sights the yellowish haze enveloping the Turkmen shore.

If the weather is windy, the blue Caspian will look as though it were being churned up by white flashes of lightning. The sea is peaceful only during the rare periods of calm. But there is always a wind somewhere, making the sea restless over a wide area. This restlessness lasts long after the wind falls. Anyone who has travelled from Baku to Krasnovodsk by sea is bound to remember the swell during calm weather, when tremendous masses of water heave and toss as though somewhere, at a great depth, the sea were beginning to boil.

The voyage from Baku to Krasnovodsk is short, taking just a little over eighteen hours, and as soon as the ship skirts the flat Krasnovodsk Spit, leaving the desert shores of Cheleken Peninsula in its wake, the traveller's mood can no longer be spoilt either by storms or by the swell. In the north, south and east, Krasnovodsk Bay is protected by the mainland, while in the west it is half-sheltered by a headland, which juts out into the sea for scores of miles. This makes it a first-class harbour and storm shelter for freighters, liners and tankers that arrive in Krasnovodsk the year round from Astrakhan, Makhachkala and Baku.

The traveller can reach Turkmenia by rail as well. This route leads into the republic from the east. The Moscow-Ashkhabad train passes through Kuibyshev, Tashkent, Samarkand and Kagan, and, after leaving Khodzha-Davlet, crosses the Uzbek-Turkmen frontier and approaches Farab, the first railway junction in Turkmenia. Sev-

eral miles beyond Farab, the Amu-Darya is spanned by the famous Chardjou Railway Bridge.

The train enters the Kara Kum almost immediately after pulling out of Chardjou, a regional capital and one of the biggest towns in the republic; it has broad, straight thoroughfares, running along the western bank of the Amu-Darya. To the passenger in a train the desert, that looked like a slightly undulating plain from an aircraft, seems to roll like a heavy sea. Huge *barkhans* (elongated sand-hills) crowd against the railway line. The passenger will involuntarily keep his eyes glued to the landscape unfolding before him, even if at first glance there seems to be nothing very remarkable about it. The low hills resemble waves that had been whipped up by a violent storm and left standing upright. But take a closer look. Rising up to 50 feet, these hills, with small, twisted saksaul trees and shrubs sticking out of them, are of sand in which feet leave deep prints as in a swamp. The desert stretches for hundreds of miles to the north and somewhat less to the south. The *barkhans* are motionless only when there is no movement in the air, but the moment a wind rises, the crest of every *barkhan* begins to throw up clouds of sand. That is the signal showing that the sand has begun to shift.

The train takes six hours to cross the Kara Kum and all that time the passenger will see nothing but *barkhans*, "smoking" in the wind or lying perfectly still. There are millions of tons of sand, and here and there a crooked tree with long, thin, drooping branches seems to have petrified on a *barkhan*. The landscape formed by this ocean of sand and overgrowth of fantastically shaped saksaul is unique and unforgettable.

When, at last, the train leaves the desert, the traveller will see cotton plantations and orchards first in the Murghab and then in the Tedzhen oases. Passengers bound for Ashkhabad begin to make ready to leave the train as soon as the toothed silhouettes of the violet Kopet-Dag Range loom in the south, and by the time they are ready the entire southern horizon will be taken up by the mountains.

If the port of Krasnovodsk can be called Turkmenia's western gate, then Farab and the railway bridge spanning the Amu-Darya near Chardjou should be called her eastern entrance. The capital of

the republic, Ashkhabad, lies at the northern foothills of the Kopet-Dags, approximately half way between Krasnovodsk and Chardjou. The monotonous sandy waste of the Kara Kum stretches to the north of Ashkhabad as far as the eye can see, while mountains tower to the south of it.

The Kopet-Dags, the republic's mightiest chain of mountains, run for several hundred miles along the state frontier between the Turkmen S.S.R. and Iran. Some of the peaks are up to 9,500 feet above sea level. The narrow fertile valley at the foot of the mountains, with Ashkhabad in its centre, gets its life-giving water from the rivers, streams and *kyarizes* (subterranean water-courses) that take their beginning on the slopes.

The Kugitang Range, which is part of the Pamir-Alai chain, dominates the extreme southeast corner of Turkmenia, along the border of Uzbekistan.

In West Turkmenia, closer to the Caspian Sea, are the picturesque Great and Little Balkhan ranges, rising steeply to the sky in the scrub and semi-scrub. The tallest peak is 6,160 feet high. At the foot of the Great Balkhans lies a very rich oil-bearing district with the town of Nebit-Dag as its centre.

West Turkmenia, which has become the republic's leading industrial area, suffers as much from lack of water as the heart of the Kara Kum. The fertile lands in the southwestern foothills of the Kopet-Dags, the so-called Messarian Plateau, remain undeveloped for the same reason.

* * *

From time immemorial, irrigated lands produced Turkmenia's chief wealth. But to get an over-all picture, the traveller must see the republic as a whole and not confine himself to places where there is a supply of water.

The concept of waterless land has acquired a new meaning in Turkmenistan, thanks to the tireless labour of Soviet people. Aridity no longer means that the land is lifeless. Great expanses stretching from the Great and Little Balkhans right up to the coast are still lacking in fresh water. But can they be called lifeless? In the region of the dried salt Lake Baba-Khodzha, the number of oil

derricks is increasing rapidly and such big industrial towns as Nebit-Dag and Kum-Dag have been built within the last decade.

The regional capital of Krasnovodsk is in a waterless area. Ozocerite and other minerals are extracted in steadily greater quantities in the sandy Cheleken Peninsula, which likewise does not have sources of fresh water. There are flourishing collective fisheries along the Caspian seaboard, where the traveller will not come across a single rivulet or fresh-water stream. The Gulf of Kara-Bogaz-Gol, which lies to the north of Krasnovodsk, was once a realm of dead sands and lifeless water, but today it is the seat of thriving mineral-extracting chemical industries, which were organized during Soviet years. Chemical and coal-mining industries sprang up during the post-war years in another corner of the republic—the Trans-Amu-Darya belt on the slopes of the Kugitang Mountains.

The Sulphur Mounds, which are in the heart of a once barren desert, were also called to life during Soviet years. The sulphur works in the Kara Kum still receive their water by aircraft and automobile, yet here, too, people live and work as anywhere else in the Soviet Union.

Soviet Turkmenistan's contribution to the U.S.S.R. economy consists of cotton, wool, karakul, oil, ozocerite, building materials, chemicals, lucerne seeds, fruit, wine, tinned food, textiles, carpets, glass and other goods.

* * *

At the beginning of 1956 there were 1,400,000 people in Turkmenia; the majority were Turkmen. Russians made up about 20 per cent of the population, which also included Uzbeks, Kazakhs, Tatars, Armenians, Azerbaijanians and people of other nationalities.

Turkmenia is one of the oldest civilized countries in the world. She has lived through many historical tempests and memorable events, some of which substantially influenced the destinies of the kingdoms of the Ancient East.

Cyrus, the Persian conqueror and founder of the Achaemenid Empire, was slain by the people 2,500 years ago, during an uprising in what is now Mari Region.

Alexander the Great led his legions across the northern foothills of the Kopet-Dags some three centuries B.C. The Greek conqueror founded the city of Alexandria of Margiana, which was later called Merv (Mari), on the banks of the Murghab. Its ruins still stand to the north of the railway line along the stretch between Mari (Merv) and Bairam-Ali.

Close to the village of Bagir (near Ashkhabad), Soviet archaeologists are digging for the remains of Nessa, the capital of the ancient kingdom of Parthia.

In the 7th century, Arab invaders broke into the territory that is now Turkmenia. Yazdegerd III, the last of the Sassanid rulers, was overthrown by the Arabs. He ended his life on the Murghab, near Mari.

The northern part of present-day Turkmenistan was the centre of Khoresm, one of the mightiest of the ancient kingdoms of Asia and the birthplace of the remarkable scientist Al-Khoresmi, who laid the foundations of algebra. The Turkmen tribes were known to their neighbours as splendid herders, brave warriors and industrious tillers of the soil, who skilfully utilized the scanty water reserves of the rivers and streams to irrigate their fields.

Through the centuries, the Turkmen people had to rise again and again to defend their country. In the 12th century, the hordes of Genghiz Khan levelled Merv and Urgench, the biggest Transcaspian cities, with the ground. A century and a half later came the barbaric hosts of Tamerlane; the atrocities he committed closely matched the horrors perpetrated by Genghiz Khan.

In the 18th century, the ephemeral glory of these ancient "conquerors of the world" stirred the imagination of Nadir, the Shah of Persia, who was a Turkman by birth. He sent his forces across Turkmenia against Khoresm and Bukhara. This invasion brought the Turkmen people interminable suffering.

Keimir-Ker, the Tekke chieftain who endeavoured to rally the disjointed tribes and clans against Nadir Shah, lives in the minds of the people and in folklore as a wise and courageous military leader.

Karaja Burunov, a Soviet playwright, used the legends about Keimir-Ker for a play, which is now a permanent feature in the

repertoire of the Turkmen theatres. It is very popular with audiences in Ashkhabad.

The poems and songs of Makhtumkuli (Fragi), the outstanding Turkmen poet, who began his manifold activities in the latter half of the 18th century, brought solace to the Turkmen tribes for almost two centuries and filled them with the hope that their *auls* (villages) and nomad camps would one day unite to form a happy, independent country.

The Great October Socialist Revolution made this dream of the Turkmen people come true. Until the Revolution, Turkmenia had neither national sovereignty nor state unity. The people were oppressed and lived in abject poverty. The tribes fought bitterly among themselves for water and the best pastures, while the social contradictions between the rich and the poor mounted steadily within every tribe.

In the past the Turkmen tribes asked Russia for help on many occasions. There was the famous pilgrimage to Petersburg made at the beginning of the 18th century by Khodzha Nepes, the chieftain of the Mangyshlak Turkmen, to see Peter I. Anxiety for the destiny of the nomads in the waterless steppe between the Aral and Caspian seas made him ask Peter "to deflect the Amu-Darya" into the Uzboi, its ancient bed. If that were done, he said, the arid deserts of West Turkmenistan would once again be the flourishing land described in legend.

Nepes's suggestion interested Peter and in 1715-16 he sent Alexander Bekovich-Cherkassky with an expedition to the delta of the Amu-Darya. The expedition came to a tragic end; Bekovich and his party were killed through the perfidy of the Khan of Khiva.

Peter never lost his interest in the lands adjoining the Central Asian rivers. In 1717, he sent Florio Beneveni at the head of a new expedition to Central Asia. Beneveni visited Bukhara and lived for several years in Khiva, successfully fulfilling the diplomatic mission entrusted to him by the tsar. The expedition gathered a great deal of information about the Amu-Darya, but this information arrived belatedly. Peter died before Beneveni's return to Petersburg.

In the middle of the 19th century, when Russian influence began to spread rapidly in Central Asia, the Turkmen were a dismembered

people. Some of the tribes and clans living in the lower reaches of the Amu-Darya languished under the yoke of the khan of Khiva. The Turkmen population on lands irrigated by the waters of the Amu-Darya along its middle course were ruled by the emir of Bukhara. Various regions—the Kara Kum, the foothills of the Kopet-Dags, the so-called Akhal (Akhal-Tekke Oasis), and lands closer to the Caspian Sea—were controlled by tribal and clan chieftains, warlords and khans, who fought almost endlessly among themselves.

The sources of water belonged to the wealthy aristocrats. The clan elders, the beys and the numerous officials of the khan and emir tyrannized the *dekhans* (poor peasants) and the *chabans* (shepherds).

The Turkmen's life companions were want, uncertainty in what the morrow would bring, the eternal spectre of a dearth of fodder for the livestock and death from starvation for the family, and the expectation of ill-treatment at the hands of the rich and the nobility.

Turkmenia's unification with Russia was a progressive, historic step which influenced the further destiny of the Turkmen people.

This did not bring any immediate, noticeable change into the inner way of life in the *auls*. As before, the Turkmen's guides in life were the Sharia, the canonical law of Islam, and the Adat, the unwritten Turkmen customary law. The head of the household was still the sovereign disposer of the lives of the members of his family and junior kinsfolk. The wife remained the oppressed, mute slave of her husband. Power in the *aul* was retained by the bey and the mullah. As before, poverty was the *dekhan*'s lot. The shadow of drought continued to hang over every vegetable patch and tiny strip of land, and the winter continued to threaten man and beast with famine.

Nevertheless, unification with Russia brought radical changes to the country's economy and culture. In 1880, the Russian government began the construction of the Transcaspian (Central Asian) Railway and finished it very quickly. Russian settlers built their homes along the railway; new settlements and towns sprang up.

The first cotton enterprises made their appearance, and in them the Russian newcomers worked as unskilled labourers side by side with the Turkmen peasants, who left their *auls* to seek salvation from poverty at the mills. True, the Russian capitalists, who followed in the wake of the tsar's troops, did not bother to make life easier for the local population. They were too busy building up their own fortunes. However, contact became possible between the Russian workers and the Turkmen poor. The *dekhans* began to understand that not all Russians were the same; they came to realize that there was a great difference between the Russian officials and businessmen and the Russian workers—the brothers of all toilers. Unification with Russia brought Turkmenia within the orbit of Russian economic, political and cultural life. The great revolutionary struggle against autocracy and capitalism, which the Russian proletariat was starting under the leadership of the Communist Party, gripped Turkmenia as well. And when the Great October Socialist Revolution triumphed, the Turkmen, too, obtained their freedom. This radically changed the life and destiny of the whole Turkmen people for all time to come.

* * *

The establishment of Soviet rule in the Transcaspian was preceded by a bitter struggle of the Bolshevik organizations against the Mensheviks, Social-Revolutionaries and bourgeois nationalists, who formed the so-called Turkmen Executive Committee after the overthrow of the tsar. A congress of the Transcaspian Region Soviets was opened in Ashkhabad at the beginning of December, 1917. It elected a Council of People's Commissars and proclaimed its whole-hearted support of the October Revolution. The Council of People's Commissars organized a Red Guard of 1,500 men. But the young Soviet Government was in a very difficult position. There was a very narrow working-class stratum in the Transcaspian towns and settlements. The Social-Revolutionaries and Mensheviks, supported by the capitalists of America, Britain and France, fiercely resisted the Revolution.

A counter-revolutionary uprising broke out in the summer of 1918. The Social-Revolutionaries and Mensheviks seized power in

Ashkhabad, brutally murdered the Ashkhabad commissars—Zhitnikov, Molibozhko, Telliya and others—and appealed to the Entente for assistance.

The Central Committee of the Communist Party sent Mikhail Frunze and Valerian Kuibyshev to Central Asia to direct the operations of the Red Army. The invaders and the *basmachis* were smashed at Dushak, Kaakhka and at the approaches to Krasnovodsk. In February, 1920, hard-pressed by the Red Army, the interventionists were compelled to evacuate Krasnovodsk—their last stronghold in the Caspian.

In a letter *To Comrades Communists of Turkestan* in 1919, Vladimir Ilyich Lenin pointed out that one of the immediate tasks of Soviet power in Central Asia was "to establish proper relations with the peoples of Turkestan, to prove to them by deed the sincerity of our desire to uproot all vestiges of imperialism."

The Civil War was followed by the first period of peaceful, creative life in the history of the Turkmen people.

One of the main concerns of Soviet power in Central Asia was to help raise the over-all cultural level of the people as quickly as possible.

* * *

The prosperity and culture of the Turkmen people began to rise rapidly after the victory of the Revolution.

At the beginning of the 20th century, literacy was a rare phenomenon among the Turkmen. Hardly six or seven people in every thousand could sign their names. Throughout the Transcaspian there were only 58 schools, and the pupils were taught in Arabic, a language the population did not understand.

Yet only four years after the Civil War there were 17,000 schoolchildren and adults studying in their native language in the towns and *auls* of Turkmenia.

Today, Soviet Turkmenistan is a land of universal literacy. The republic has 1,218 secondary schools, 30 vocational schools and six institutions of higher learning.

An important event took place in Turkmenia in 1924. That year the territorial and national boundaries of Soviet Turkestan, as well

as of Khoresm and Bukhara, were delimited in response to the wishes of the working people of Central Asia. This united the Turkmen people in an independent state for the first time in their long history. The Turkmen Soviet Socialist Republic was formed.

The decisions taken by the First Congress of Soviets of the republic on the equality of women and on a land and water reform revolutionized the age-old way of *aul* life.

In 1925, as many as 2,500 beys were dispossessed in two districts alone, Mari and Ashkhabad. Land and a just quota of water for irrigation were given to about 30,000 landless and poor *dekhans.*

Soviet Turkmenia has grown into an advanced socialist republic, with a high national culture, a steadily developing industry and a large-scale, mechanized agriculture. During the first five-year plan, a textile mill, a footwear factory, a sewing works and a silk factory sprang up in Ashkhabad; large chemical enterprises were built in the Gulf of Kara-Bogaz-Gol and in the Kara Kum; a metal-working industry was organized; the output of oil increased substantially. This economic advance continued during the second and third five-year plans, when about 300 industrial enterprises, power stations, and hydropower projects were launched. The republic's economy changed fundamentally as a result of rapid industrialization. Industry's share in Turkmen economy in the first year of the first five-year plan was a little over 30 per cent, but in 1952, at the end of the fourth five-year plan, capital investments in industry rose to 75 per cent of the total investments in the republic's national economy.

After the war, Soviet Turkmenia forged ahead at an even faster rate. The earthquake of 1948 wrought serious damage, but, with the help of all the fraternal Soviet peoples, the republic quickly healed the wounds inflicted on it by this natural calamity.

In 1954, there was 35 per cent more land under cotton than in 1945, while cotton yields were 50 per cent higher; it must be borne in mind that cotton is Turkmenia's staple agricultural crop.

The oil industry is developing with similar success. Nebit-Dag, which sprang into existence in the middle of a desert, is flourishing. A new town, Kum-Dag, is rising amid the *barkhans.* Krasnovodsk has become an important port.

West Turkmenistan, once a desert, is now a leading industrial region.

Great changes are taking place in the eastern districts. The Chardjou-Urgench Railway, one of the major construction works of the fifth five-year plan, has been opened, giving the densely populated districts of Tashauz Region as well as of Kara-Kalpakia and Khoresm their first reliable means of communication with the world. The transportation of goods between these districts and the rest of the country no longer depends upon the whims of the Amu-Darya. Navigation on that river was always dangerous and so difficult that it almost amounted to a heroic feat. Sandbanks, shoals and sudden changes in the fairway hindered navigation to the extent that between Tashauz and Chardjou most of the goods had to be transported by automobiles, although a drive across the sands in a wheeled vehicle is an exploit in its own right. No wonder that until very recently many goods were transported after the manner of the ancients—by camel caravan.

The new railway along the Amu-Darya will help to promote the further rapid development of districts lying close to the delta of that great Central Asian river.

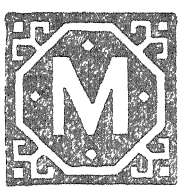
The appearance of the southern regions is changing, too. Construction on the Kara Kum Canal is in full swing. By 1958, the waters of this canal will have doubled the area of the Murghab Oasis and transformed the southeastern regions of the Kara Kum.

No matter where the visitor to Turkmenia goes today—the forbidding coast of the Caspian, the agricultural regions of Tashauz and Murghab, the foothills of the Kopet-Dags, Nebit-Dag with its oil derricks, or the banks of the Amu-Darya—he will find signs of progress in the economy, culture and everyday life of the people. The new way of life is triumphing everywhere and in everything because the people are inexorably pushing ahead, overcoming all difficulties and all resistance in their march towards communism.

ALONG
THE
TURKMEN
SEABOARD

# Chapter I

1



EASURED IN A STRAIGHT line from north to south, the Caspian coastline of Turkmenia is 310 miles long. However, if account is taken of the ruggedness of the shore and of the far-flung Gulf of Kara-Bogaz-Gol, which lies to the north of Krasnovodsk Bay, the coastline of the Turkmen Republic will turn out to be from two to two and a half times longer.

Contrary to the deep-rooted idea that Turkmenia is a land of waterless spaces and ancient caravan routes, her proximity to the sea allows us to speak of her as of a maritime country. Her seaboard has been her gate to the outside world from time immemorial.

The expedition sent by Peter I and led by Bekovich-Cherkassky reached the Transcaspian deserts by sea. Khodzha Nepes followed a sea route to Astrakhan and then up the Volga into Russia to the court of the Russian tsar. All subsequent expeditions, including scientific expeditions, which did so much to open up Turkmenia, likewise penetrated into that remote land by sea. But a real study of the maritime regions of Turkmenia began only in Soviet times.

All investigators agree that the features distinguishing this region are an exceptionally great wealth of minerals and an incredibly meagre supply of fresh water. Although the entire republic (with the exception of a narrow strip in the Amu-Darya Valley and the Murghab Oasis) suffers from lack of water, the most acute shortage is in West Turkmenistan.

The old notion about Turkmenia being a completely waterless land, however, has been refuted to a considerable extent in the post-war years by Soviet hydrologists. Rich subterranean sources have been discovered near Djebel. No shortage whatever has been experienced for many years now in such a big town as Nebit-Dag, while the inhabitants of Kum-Dag and Cheleken, the youngest towns in the republic, no longer depend upon water-carriers or purifying stations; they get their supply by pipeline.

Ships making the run from Baku come in sight of the steep Turkmenia shore the moment they round the dazzling white limestone spit at Krasnovodsk.

From this vantage point, the shore resembles a rosy-red, jagged wall or, to be more exact, several walls hugging the edge of the glassy, pale green surface of the bay. The buildings and cottages, built of red, grey or white brick, are grouped around the port installations or formed into a long line to the right and left along the shore. The outlines of round water towers, looking like the teeth of a castle wall, rise distinctly against the pale sky high above the roofs on one of the cliffs. This is Krasnovodsk, the biggest port in Turkmenia.

Although the coastal range around Krasnovodsk seems formidably high, Umgali Peak, the tallest in this range, is actually only 850 feet above sea level (if we do not take into account the fact that the Caspian is 92 feet below the normal sea level, from which all heights are measured).

The impression that Krasnovodsk lies at the foot of a majestic mountain range is intensified because these mountains are devoid of all sign of vegetation. The view from the deck of a ship is made up of a brilliant sky, the cones of brown cliffs towering above the houses, the Kuba-Dag Mountains, stretching far to the east, the huge cubical Palace of Culture, dwarfing all the other buildings in the town, and the smoke from ships moored to the wharves.

As you draw nearer to the shore, you will notice something that looks like patches of green mist. This is the foliage of young trees and bushes, the joy and pride of the people of Krasnovodsk, who tenderly foster every little bush that strikes root in their sultry streets and every slender twig that breaks into leaf.

To the west, the eminences of the highlands surrounding the town are crowned by the pointed Sha-Kadam Peak. The lesser peaks, the sisters of Sha-Kadam, as it were, gradually descend towards the bay and end with a cliff that is no bigger than an ordinary three-storey house and resembles a large crystal.

Krasnovodsk stands on a gently sloping shore where the mountains, in their retreat from the sea, have formed something in the nature of an amphitheatre.

The town's main thoroughfare leads from the sea deep into this stone platform.

Peak Sha-Kadam closes the town in on the west. But Krasnovodsk is continuing to expand. Once a district centre, it is now the capital of a region. A general plan of the future Krasnovodsk has already been drawn up. Beautiful Sha-Kadam will find itself inside the town. New blocks of houses will skirt this tall mountain from all directions. The heart of the town will shift to the west. Between the conical peak, which lends the townscape such a distinguished appearance, and the sea-shore, there will be new streets; the plan envisages not only the architecture of the houses to be built there but even the way trees are to be planted.

2

Krasnovodsk holds the threads of the republic's economic and cultural life and of the transport system, which links Ashkhabad with the industries of Kara-Bogaz-Gol and Cheleken, the collective fisheries along the coast, and the livestock-breeding farms in the hinterland—the sandy or mountainous regions of West Turkmenistan.

The town is comparatively young, having been founded in 1869, although the first Russian settlers arrived here a century and a half earlier. Before sending Bekovich-Cherkassky with an expedition to Khiva, Peter I ordered a fort called Krasnovodsk to be built on the eastern shore of the Caspian Sea. It was destroyed soon after the loss of the expedition, but the memory of it has remained. Near the settlement of Kizyl-Su on the Krasnovodsk Spit there is a monument marking the graves of Russian servicemen who per-

ished here. Kizyl-Su, *krasnaya voda* in Russian, means "red water." Fort Krasnovodsk of Peter's day stood close to where the fishing settlement of Kizyl-Su is now situated.

A hundred years after the death of Bekovich-Cherkassky, General A. Yermolov sent two officers, N. Muravyov and L. Ponomaryov, who were stationed in the Caucasus, to investigate the eastern shore of the Caspian; they reported that they had found a place on the shore of Krasnovodsk Bay which was "the best location for a trade factory and a fort."

Half a century after the Muravyov-Ponomaryov expedition, a town was founded on the spot they had marked. At that time it was an isolated fort of the Transcaucasian Military District which virtually had no means of communication with the rest of Central Asia. It remained unchanged until the day the head of the Central Asian Railway was shifted to it from its initial site in Uzun-Ada, a settlement on the southeastern shore of the bay.

The first train whistle sounded in Krasnovodsk in 1896 and ushered in a new era for the remote fort, an era in which it grew into a major trans-shipping point on the communication lines connecting Europe and Asia.

This was where passengers and freight bound from European Russia, the Caucasus, or Iran, to the interior of Central Asia, ended their voyage by sea and began their journey overland. The great Central Asian Railway begins here.

At the turn of the century, the chief industrial enterprises in Krasnovodsk were ship-repair yards and a roundhouse, as well as a timber-yard and a tiny fish factory, which was really nothing but a smoke-drying shed.

Tsarist officials did not like to go to Krasnovodsk; they regarded an appointment to that town as something akin to exile. Enclosed by a wall of mountains, it reminded them of a fortress prison. The low, flat-roofed stone dwellings were oppressively monotonous. The streets were fairly wide, but the houses were so small that they provided practically no shade; since Krasnovodsk is one of the hottest towns in the country, this lack of shade in its streets was very trying.

The hot climate was all the more unbearable because of the constant shortage of fresh water. There was not a drop of moisture to be had from the surrounding highlands. Rain was rare. The annual 3.9-4.7 inches of rainfall does not in any way moisten the soil or provide water for the population. Fresh water had to be brought by rail, sea, or distilled from sea-water locally. In Soviet years, prospectors found a source with fairly considerable reserves in the desert north of Krasnovodsk. Though somewhat salty, this water is much pleasanter to drink than the water put out by the purifying stations. Pipes leading from the new source were laid during the Second World War. Besides increasing the water supply by a third, this permitted Krasnovodsk to indulge in the luxury of planting trees in the streets and laying out two parks. Slender saplings were planted on either side of Shaumyan Street, and in the following spring they sprouted leaves. That brought green foliage into the general colour scheme of the townscape, which formerly was dominated by the different red shades of the cliffs and mountains and the various blue hues of the sea and sky.

Prior to the Revolution, it was contended that the stony and sandy soil in Krasnovodsk was unsuitable for vegetation even if there had been an abundance of moisture. To prove this contention, reference was made to the little public garden, the only one in the town, where dismal saksaul trees, oleasters and desert acacias withered away every autumn amid the dust and rubble.

That contention was fundamentally wrong. Even in those days, a little more attention to the life of the town would have proved that. For years, the people had accustomed themselves to be sparing in their use of water. Yet when filling their pails at the hydrants, they usually spilled some of their ration (water was rationed here before the Revolution and even for some time after it). Since there were only a few hydrants and the taps were hardly ever turned off from early morning till late in the night, something like a little stream would form near each in the course of the day. That was enough for trees to grow near the busiest hydrants. Three luxuriant willows grew up in this way—one in the centre of the town, in a thoroughfare now known as Karl Marx Street, and two in the railway district, close to the railway station.

These big, shady willows, which grew wildly by the hydrants, vividly prove that the soil is not at all barren—provided there is water.

3

While expanding gradually, Krasnovodsk remained, in a way, cut off from the rest of Turkestan. It was not attached to Central Asia even administratively, forming part of the Transcaucasian Military District. Krasnovodsk District was instituted only after the Transcaspian Region was formed at the close of the 19th century.

During the Revolution, the people of Krasnovodsk bore the full burden of enemy occupation. Denikin and the Social-Revolutionaries seized Ashkhabad in the summer of 1918, basely murdering the leading representatives of local Soviet power, but could not stem the offensive of the Red Army, which advanced from Chardjou. Interventionist troops invaded Turkmenia in order to help the Whiteguards. A colonial regime set in in Krasnovodsk as in all the other occupied regions of the Transcaspian. Inhuman atrocities were perpetrated against the working people. The British commander, General Malleson, considered no enormity unwarranted if it helped him, as he later wrote in his memoirs, to retain possession of the Central Asian Railway and, if possible, of all the sea lanes in the Caspian. Pavel Besshapochny, a worker, was buried alive on the outskirts of the town. A floating prison, built in the port by the invaders, became the graveyard of many Soviet citizens. Twenty-seven innocent people were taken to Yagman, a railway junction, and put to death there.

As part of their predatory plans, the invaders seized the oilfields in Cheleken in the summer of 1918 and founded the Mobarad Joint-Stock Company. All the oil was sent to England via Iran.

Twenty-six Baku commissars were brought to Krasnovodsk in September, 1918, in the hold of the *Turkman*, a steamship captured by the Whiteguards. The invaders were jubilant when they learned who their prisoners were. General Malleson wrote, "This news was obviously of the first importance. Here was a parcel of the biggest agitators in Russia suddenly decanted on our shores."

There is a low, official-looking stone building in one of the city squares near the port. This was the prison death-house. It is now the Museum of the Twenty-Six Commissars. The busts of Shaumyan, Fioletov, Djaparidze and Azizbekov have been erected in the little paved square in front of the entrance.

The doors of the museum are rarely closed. People visiting the town make a point of going there. Deep emotion fills the visitor when he leaves the sunbathed square, where the laughter and shouts of happy Soviet children mingle with the honking of buses and the hum of a rapidly growing industrial coastal town, crosses the threshold of the museum and finds himself in front of an ironclad door with a small barred window. Through it are seen beds made from roughly hewn planks, an earthen floor, and a low, whitewashed ceiling. Thirty-eight years ago, hangmen watched the captive heroes through this very window. Cowardly judges had passed the death sentence on men who were to become immortal and whose names will never be forgotten by Soviet people.

Many of the streets of Krasnovodsk have been named after the fallen heroes. One of the main thoroughfares bears the name of Stepan Shaumyan. Next to it are Fioletov, Azizbekov and Djaparidze streets.

Turkmen industry expanded swiftly during the years of the first five-year plans. In Krasnovodsk, a big, modern fish plant replaced the semi-primitive smoke-drying shed.

There are tremendous deposits of building stone in the mountains around the town, and its extraction was begun on a big scale. The stone, a kind of limestone, is beautiful, light, durable and porous, and can be treated almost as though it were wood. It was used for most of the town's best buildings and is known by its local name of *gyusha*. It can be sawed with an ordinary saw and squared with an axe or knife.

The output of other building materials—alabaster and gypsum—is also increasing.

Krasnovodsk's importance as a port is mounting all the time.

The freight carried by sea to Turkmenia and other Central Asian republics through Krasnovodsk includes grain from the Northern

Caucasus, the Ukraine and the Volga area, timber from the northern districts of Russia, iron from the Urals, coal from the Donbas, manufactured goods from Moscow, machine-tools, cars, lorries and tractors—in short, everything that Turkmen industry is as yet not producing itself and all that the Turkmen soil cannot yield. Through the "Krasnovodsk Gates," Turkmenia sends cotton, oil, salt, sulphates, sulphur, ozocerite, wool, fur, glass, wine, bromine, iodine, meat, fish, fruit, lucerne seeds, nuts, silk, dyes, Tekke stud-horses and Turkmen carpets—an exquisite product of applied folk art—to the Caucasus, the Ukraine and the Russian Federation.

The port of Krasnovodsk made a large contribution towards the final victory in the Second World War. When the fascist armies broke through to Stalingrad, it was the only port linking the Caucasus with the rest of the country. That made it a nationally vital communications centre. There was not a moment's respite as the loading and unloading of ships went on day and night; new spur-tracks and warehouses were built for the purpose. Thousands of fishermen from the collective fisheries scattered about the Caspian coast came to assist the workers and inhabitants of the town. Troops, armaments and tanks moved through Krasnovodsk to the Caucasus. Oil from Baku and Grozny was sent to Russia via Krasnovodsk.

These memorable days for ever inscribed the name of Krasnovodsk into the glorious history of the Soviet land.

Krasnovodsk provided refuge for the thousands of evacués passing through it from the Caucasus and the Ukraine. They had to be accommodated and fed. They had to be given water; that was about the most difficult problem the town had to face. Not only people, but whole factories that were threatened by the enemy were evacuated from the Caucasus.

The town has changed beyond recognition during the years of socialist construction. This is true not only of the townscape, but, primarily, of the people themselves.

Anyone who went to Krasnovodsk before the Revolution will remember the wharves and the railway station swarming with ragged and destitute porters (they were known locally as *ambals*). Their bare, muscular arms, tanned to a deep brown, a rope over

their shoulders and a "saddle" on their backs made up the sum total of the "technical" equipment for all the loading and unloading operations on the railway and in the port.

The *ambal* was the pariah of Krasnovodsk in the days it was a district centre. Pitifully paid, he found solace in a pot-house. His home was in a sweltering, dust-laden corner of a warehouse or courtyard near the port.

Today, Krasnovodsk is one of the best-equipped ports on the seas washing the shores of the Soviet Union. Machines, which do all the manual work now, drove the back-breaking labour of the *ambal* into the past.

A town of seamen and railway workers, it has become in the post-war years a city of industrial workers as well, with a numerous army of engineers and technicians.

Big, industrial Krasnovodsk is today a town with many educational establishments; it has 13 schools, one of which is a school of music, where musically inclined Russian, Turkmen and Kazakh children are studying.

Krasnovodsk's international family of Soviet toilers—Russians, Turkmen, Kazakhs, Azerbaijanians, Armenians—love their town and are proud of it.

The town received its first subtropical plants—date-palms and cactuses—in the spring of 1945. The seedlings struck root splendidly. But when winter began to set in, the whole town watched anxiously, for January and February are the months when an icy north wind can be expected to blow from the highlands at any minute. The mean annual temperature of the air in Krasnovodsk is above freezing point. Yet the bursts of north wind are sometimes so cold that the bay freezes over for short periods. The young subtropical plants would have been helpless against these sudden, violent attacks of cold weather.

Quite a few years have passed. The date-palms have acclimatized themselves and are now adult trees.

Krasnovodsk has grown in length and breadth since the war; only recently, the whole town could be toured in half an hour, but now no less time than that is required to ride a bus from the port to the Builders' Club, which stands in the heart of a new district.

## Chapter II

1

The Kuba-Dag Range, which encloses Krasnovodsk in a yellow-brown bowl, is not an independent chain of mountains. It forms only the somewhat elevated rim of a vast highland, which stretches almost over the entire peninsula and is bordered by Krasnovodsk Bay on the south, the open sea on the west, and the Gulf of Kara-Bogaz-Gol on the north.

This highland is called the Krasnovodsk Plateau. It is 912 feet above sea level in the south and slopes gradually to the north, taking on the appearance of a plain sparsely dotted with hills and criss-crossed by numerous gullies and the dry beds of rain-water streams. But before reaching the Gulf of Kara-Bogaz-Gol, the plateau rises again, attaining at one point an altitude of 876 feet.

Deep hollows and gullies, resembling gigantic stone bath-tubs with the water let out, are a salient feature of the plateau. Some of these "bath-tubs" are more than 260 feet deep.

Geologists speak of the tectonic origin of these "bath-tub" hollows, meaning that they originated as a result of a deformation of the earth's crust. This is quite possible in view of the frequency of earthquakes in this region. Some have been very destructive. Old-timers in Krasnovodsk remember the catastrophic earthquake of the summer of 1895. The first tremors were felt at twenty minutes past two in the morning and by dawn the landscape in many districts along the Caspian shore was unrecognizable. The settlement of Uzun-Ada, then the head of the railway, ceased to exist. The railway structures, the houses, in fact, everything was levelled with the ground and the earth caved in, spouting fountains of water. In a few hours, the water washed away the rails, sleepers and walls, destroying what had taken many years to build. The railway line between Uzun-Ada and Kazandjik was twisted out of shape.

Few earthquakes have been so prolonged or intense. The tremors, beginning in June, continued right up to October and spread over a vast area—to Samara (Kuibyshev) in the north and to Tashkent in the east.

The epicentre was somewhere between Krasnovodsk and Uzun-Ada.

Destroyed by the earthquake, Uzun-Ada has not been restored since. The earthquake was directly responsible for the decision to move the head of the railway to Krasnovodsk, although the question had been raised before. Krasnovodsk's advantage over Uzun-Ada is that there the bay is much deeper. Seagoing vessels of any draught can be moored to the wharves in Krasnovodsk, while Uzun-Ada could receive only flat-bottomed barges. Freight bound for Uzun-Ada had to be unloaded into barges out at sea and these took it to the shore. That held up the development of communications with Central Asia.

Besides limestone, Krasnovodsk Plateau has deposits of igneous rock—granite and porphyry. The low precipitation explains why these highlands, which occupy an area of more than 2,300 square miles, lie naked in the sun for the greater part of the year without any sign of vegetation.

Sandy patches are few and far between. These are the only places where vegetation appears, but it withers away as soon as the sun comes into its own in the spring.

There are only a few wells and man-made holes for collecting rainwater. These meagre sources of water are scattered about the plateau and allow the sparse population to breed livestock. But the opportunities for this are very limited in comparison with the prospects of industrial development.

The population of the Turkmen seaboard lives mainly in towns and in town-type settlements.

2

Turkmenia's sulphate-extracting industries are on the shore of the Gulf of Kara-Bogaz-Gol, north of Krasnovodsk.

To reach the gulf from Krasnovodsk there is no need to negotiate the cheerless and almost impassable Krasnovodsk Plateau. A trip by launch is very pleasant, but the easiest way is to go by car. After crossing the rocky ridges of the Sha-Kadam, the car heads north and a four or five hours' drive along a sandy, sloping coastal road between the hills and plateau on the right and the long and narrow

salt Lake Kuuli on the left brings it to a half-filled sound with sandy headlands on either side. East of these headlands lies a huge, lake-like gulf, the properties of whose bitter-salt waters puzzled and awed the population for centuries. Its name, Kara-Bogaz-Gol, given to it by Turkmen and Kazakh fishermen, literally means "Gulf of the Black Mouth" or "Evil Glutton."

The gulf, which earned such a name, is one of the interesting sights of the Soviet Union.

The waters of the Caspian pour into the gulf in a never-ending stream through the narrow Kara-Bogaz Sound, and in the old days nobody knew where it went from there. The water level in the bay, which is as big as Lake Ladoga, is always below that of the sea and this was what made the local fishermen think there was an exit, a "black mouth," for the water in the centre.

The explanation for the different levels and the resultant continuous inrush of water is that evaporation is much more intense in the shallow gulf than in the open sea. The gulf acts like a boiler in which the waters from the Caspian evaporate. But in evaporating, they leave behind all their salt and, as this process has been going on for many centuries, the salt content is 20 per cent higher than in the sea. Nowhere else in the world is there such a vast salt lake. Fish swept into the gulf by the current cannot breathe and die. Frail fishing craft entering the gulf through the sound sometimes cannot withstand the pressure of the salt water, develop leaks in every seam and go down to the bottom. This only served to strengthen the conviction of the fishermen that the narrow sound connecting the sea with the gulf leads straight to hell.

Russian seafarers did much to explain the riddle of the "black mouth." In this respect, particularly great services were rendered by G. Karelin, who investigated the gulf in 1836, and by Lieutenant Zherebtsov, who led a naval expedition into these waters in 1847.

Karelin wrote: "There is truth in the belief which has existed since the time of Peter the Great that the waters of the Caspian ceaselessly rush into the Gulf of Kuli-Darya (the name the local population sometimes gives to the Gulf of Kara-Bogaz-Gol—*P.S.*) with a force so great that boats make the return journey with enormous difficulty even when they are hauled."

Lieutenant Zherebtsov gave a colourful description of the gulf, excerpts of which would be usefully cited here:

"The north shore is steep and craggy and consists of salt clay and white gypsum. Neither grass nor trees grow there. Dismal mountains tower in the east, while southwards the shore is low and dotted with numerous salt lakes.

"The entire coast is a desert without a drop of fresh water. I did not find a single stream emptying into this truly dead sea.

"There are no convenient anchorages, but this circumstance by no means hinders navigation since the depth of the gulf is negligible everywhere. Ships can cast anchor anywhere they like. The bays are very shallow and ship's boats have to stop at a cable's length from the beach and the men wade to it ankle-deep in the water for half an hour, sometimes more.

"We did not pass any rocks, reefs or islands.... Strong winds blowing from the east and stirring up a high sea are the only cause for anxiety. In the gulf the water is extraordinarily salty and dense; that makes the waves more destructive than out at sea. But here, as distinct from the sea, storm winds have to exert a great effort, as it were, to disturb the water. The resultant spectacle is really interesting, for the waters beyond the spit remain calm while a storm rages at sea. But once these waters are disturbed they subside slowly and a heavy swell surges towards the shore for hours.

"From the sea the gulf looks like a cupola of reddish mist; this frightened seafarers for many centuries. The belief is that the phenomenon is caused by intense evaporation. It must be remembered that the gulf is surrounded by a white-hot desert. This, if I might make the comparison, converts it into a cauldron in which the waters of the Caspian boil.

"The bed of the bay is very remarkable: it consists of a layer of salt over limy clay. To my mind, this salt is of a special kind; its properties are different from those of the salt we use in food or for pickling.

"Even a short stay in the gulf is dreary and makes one long for places with vegetation and people. I did not meet a single person although I explored the shore for hundreds of *versts* and, except for

terribly bitter wormwood and dry weeds, there was not a blade of grass to be seen. Only salt, sand, and the all-killing heat reign over these inhospitable shores.

"The water is not at all transparent. Dead fish, carried in from the sea, float about in it. We found great numbers of these dead, salted fish on the beach.

"The next day we sailed along the northern shore and reached Kara-Sukut Spit. There the water was streaked with broad bands of reddish foam. This unnatural colour surprised me. I ordered a boat and set out for the nearest band. When I scooped up some of the foam, I saw why it was coloured. It had tiny red crayfish spawn in it. I was amazed that spawn could live in such salt water. I made for another band, which was somewhat broader and redder than the first and it was then that a curious thing happened. The 'foam' rose into the air with a hollow cackle and flew clumsily over our boat and the heads of the dumbfounded oarsmen.

"It was a flock of flamingoes. The birds had been sitting in the river (i.e., in the gulf—*P.S.*) and feeding on the crayfish spawn. In Kara-Sukut we saw countless numbers of wild geese and bad-tempered pelicans, called 'old wives' locally."

It is difficult to add anything to this vivid description which was written a hundred years ago. Much of it is true even today, with the exception that flamingoes are now rare visitors in the gulf. Their favourite winter quarters are on the banks of the River Atrek in the extreme southwest of Turkmenistan.

The assertion that there are no people on the shores of Kara-Bogaz-Gol is outdated, too. During the first five-year plans, the gulf, once devoid of human life, became the home of a thriving sulphate-extracting industry. Zherebtsov was right: the salt deposited on the bed of the gulf and on its shore is indeed no ordinary kitchen salt such as is "used in food or for pickling." Particularly important among the different kinds of salt in the gulf is the so-called decahydrate Glauber's salt or mirabilite. Dried in the sun, this salt turns into sulphate—a valuable basic raw material for the chemical industry.

Compounded with coal, limestone or quartz sand, sulphate yields caustic soda, sulphuric acid, sodium sulphide, hydrosulphide, so-

dium or other very useful substances for various branches of industry and agriculture.

The Gulf of Kara-Bogaz-Gol is the world's largest natural source of sulphate.

Mirabilite separates itself from water of its own accord and settles on the bed of the gulf and on the beach in such great quantities that it can be shovelled into sacks as though it were sand. In order to extract the sulphate, only two simple processes are needed: piling up the mirabilite and dehydrating it in the sun. As for the mirabilite, the only two conditions it needs in order to settle on the bed of the gulf are a continuous inflow of water from the sea and a steady water temperature of 39-43°F. These are the natural conditions prevailing in the Gulf of Kara-Bogaz-Gol during the winter months, from January to April.

In April, the water grows warmer and dissolves the mirabilite, making the sulphate-extracting industry seasonal.

The mirabilite reserves in Kara-Bogaz-Gol run into millions of tons. Practically speaking, that means they are inexhaustible.

Sulphate was first extracted by industrial methods in 1924. At the same time, a special expedition, sent by the U.S.S.R. Academy of Sciences, studied hydro-chemical conditions in the gulf and in the adjoining lakes, and a settlement was founded on the southern shore of the sound which connects the gulf with the sea.

Formidable obstacles, considered insuperable by many people, had to be surmounted before the new industry could be organized. The chief of these were, of course, the heat in the summer and the absence of fresh water. Chemically pure limestone, coal, quartz sand, potter's clay, and many other valuable minerals were found in the region of the gulf. The only vital *mineral* not found was fresh water. It had to be brought in special barges from the Caucasian coast. There was nothing in the region that could serve the workers as fuel or building material for dwellings. Everything down to the last nail, the chips of wood for the *samovar*, and the broom with which to sweep the floors, had to be brought by sea from Baku, Makhachkala or Astrakhan.

The Kara-Bogaz-Gol sulphate fields now rank among the leading enterprises of Turkmenia. Lieutenant Zherebtsov was profoundly mistaken when he called the gulf a "dead sea." The dead do not come to life, but the once desert shores of the "Gulf of the Black Mouth" are now seething with life. The port of Bekdash is always busy and the settlement itself hums with activity. The streets are full of people going to work and children hurrying to school. Young trees are growing in front of the houses and there is a vegetable patch in every backyard. In the autumn, the visitor will always find a sweet musk-melon, tomatoes or a juicy melon. These are no longer brought by ship over hundreds of miles. The local kitchen gardeners have learned to grow them in trenches where the subsoil waters reach them and obviate the necessity for artificial irrigation.

Fruit-trees—apples and pears—and vine have found a home on these shores. A young orchard, occupying 37 acres, is the pride of the industrial settlement.

The workers of the Kara-Bogaz-Gol Sulphate Combine in the settlement of Omar-Ata, which has grown into a town, will soon have running water in their flats like the people of Krasnovodsk.

3

The level of the Caspian has dropped sharply in the last 10-15 years. Practically speaking, water no longer flows into the gulf and this necessitated shifting the centre of the sulphate industry from the south of Kara-Bogaz Sound to its northern shore.

The industrial settlement, built on the southern shore during the first five-year plan, had to be abandoned, and today the heart of the industry is in Bekdash. The sulphate is not extracted directly from the gulf, but from an independent reservoir, the so-called Lake No. 6.

This comparatively small lake gets its water from the gulf along an artificial canal, while the amount of sea-water necessary to compel the mirabilite to settle on the bottom is pumped into it through pipes.

The new method of retaining water in *basins* is a great advance over the old method which was based on *gravity-fed* water. It frees the industry from dependence on the whims of nature and, first and

foremost, on the level of the Caspian, which, when sulphate-extraction was first begun, strongly influenced the flow of sea-water into the gulf and, consequently, the conditions under which the mineral was extracted.

The fluctuations in the level of the Caspian were noted long ago. The diaries of many travellers of the 18th and 19th centuries are quite emphatic on that point.

Let us make an imaginary journey down the Turkmen seaboard, from north to south, and compare our observations with what we know about these places from notes that have come down to us from the past.

Investigators of the 18th and 19th centuries made a point of mentioning a navigable sound linking the Gulf of Kara-Bogaz-Gol with the Caspian. The sound is also mentioned in Turkmen and Kazakh legends. Yet today, it is unnavigable. This shows that, compared with those far-off days, the level of the Caspian Sea is considerably lower.

South of the Gulf of Kara-Bogaz-Gol there is a long, narrow stretch of water called Lake Kuuli, which is noted for its large deposits of common salt. Old-timers from among the local population remember the day when this lake was a sound. Now Lake Kuuli is cut off from the sea by a broad isthmus of shellrock and sand.

Farther south lies the narrow Krasnovodsk Spit, which juts far out into the sea. It is a bustling crossroads for fishermen from Gasan-Kuli, Chikishlyar, Krasnovodsk and Ogurchinsky Island. The settlement of Kizyl-Su is the hub of one of the coast's biggest collective fisheries and the site of a fish plant. Before entering Krasnovodsk Bay, all vessels have to skirt the spit and carefully pass along the middle of the sound between the spit and Cheleken Peninsula in order to avoid running aground on the shoals. Yet at the close of the 19th century this sound was navigable throughout its breadth.

Let us move a little farther south.

In describing Krasnovodsk Bay, Bekovich-Cherkassky mentioned two islands bordering it on the south—Neftyanoi Island and Dargan Island. The former is now called Cheleken and the latter is known as Dardja. But neither is an island. Dardja became a peninsula at the close of the 19th century; Cheleken became part of the

mainland quite recently. This happened when the level of the Caspian Sea dropped and the water retreated from the straits separating the two islands from the mainland.

There was one more island—Dervish Island—south of Cheleken. It is marked on a map of the Caspian Sea that was published in 1720. However, several years after its publication, F. Soimonov, a traveller, found that the island no longer existed. The straits between Dervish Island and Cheleken had dried up and the island had become a sandy spit stretching from Cheleken to Ogurchinsky Island.

Only some fifteen or twenty years ago there was a bay cutting deep inland between the northern shores of Dardja Peninsula (formerly Dargan Island) and the southern precipitous extremity of the Krasnovodsk Plateau. The traveller approaching Krasnovodsk from Ashkhabad once had a view of a broad, smooth stretch of sea many hours before the end of his journey.

If it was in winter, he wondered at the enormous number of ducks along the shore. Now, instead of the blue bay there is a dry, clayey plain where the game is not ducks but turtles.

This dried-up depression was known as Balkhan Bay. It was abandoned by the sea already in our day.

Some maps compiled in the 18th century show yet another broad, deep bay running inland south of Dardja. This was the Bay of Khiva and it stretched right up to the foothills of the Great and Little Balkhans. Two islands—Nebit-Dag and Munzhukli—were marked in the middle of this bay.

However, when travellers came here in the 19th century there was no bay to be seen. I. Muravyov (1821), Basargin (1826), Karelin (1836), and later investigators even doubted that it ever existed. All they mentioned was a big salt lake surrounding Neftyanaya Mountain and Munzhukli Hill.

However, all sign of this lake disappeared a hundred years later, at the beginning of the 20th century. Nebit-Dag and Munzhukli are now surrounded by the big Kelkor Salt-Marsh, across which runs a highway connecting the town of Nebit-Dag with the oilfields in the vicinity.

Farther south, between Cheleken and the Iranian border, there are other indications showing how much the level of the Caspian dropped during the last few decades.

The most important inhabited locality along this naked, sea-buffeted shore is the town, or, to be more exact, settlement of Gasan-Kuli (or Esen-Kuli as it is called locally). All maps published prior to 1941 show Gasan-Kuli as a port in the Bay of Gasan-Kuli. But if the traveller goes to Gasan-Kuli today and looks for a shore drive in order to see the sea, he will be disappointed. This town does not have a shore drive nor anything that is reminiscent of the sea. The "port" of Gasan-Kuli is surrounded by land on all sides. The sea has receded from Gasan-Kuli for many miles.

The level of the Caspian Sea fluctuated considerably in the course of the earth's geological history. But in the historical period known to us, this level has been falling regularly, in spite of the fact that at certain short periods the volume of water increased. A constant drop in the level of the Caspian has been registered in the last few decades.

The explanation is that evaporation is very intense in the Caspian, particularly in its southern regions. The mean annual loss through evaporation is about 96 cubic miles. If this is distributed over the surface of the sea, it would mean a loss of 26-39 inches annually, which the rivers and precipitation (rain and snow) are called upon to fill in.

The Volga empties more than 60 cubic miles of water into the Caspian, and the rest is brought by the other rivers of the Caspian Basin—the Ural, the Kura and the Terek.

It is easy to see that any change in the volume of water emptied by the rivers or in the quantity of precipitation instantly affects the level of the Caspian.

In the last 15-18 years, the features of the Volga Basin have been a low water level and high temperatures. Quite likely, this is the reason for the sharp fall in the level of the Caspian Sea.

4

Krasnovodsk is an important communications centre, with the railway running eastwards, past Nebit-Dag, between the Balkhan Ranges and along the Kopet-Dag foothills to Ashkhabad and

farther—to Mari, Chardjou, Bukhara, Samarkand and Tashkent. The sea lanes fan out from Krasnovodsk to north, west and south: west—to Baku and Makhachkala; north—to Astrakhan; south—to Cheleken, Ogurchinsky Island and farther to Chikishlyar and Gasan-Kuli.

In addition, there are airways from Krasnovodsk to north, south, east and west, carrying chiefly passengers and mail. The main streams of cargo and transit passengers go by rail to the east and by sea to the west. The southern sea lanes link Krasnovodsk with the industries scattered along the coast. Among these, the industries on Cheleken Peninsula are of the greatest importance to the republic's economy.

From the sea, Cheleken's sandy shores, which are almost always wrapped in a mist, look colourless and deserted. The central part of the western shore is 65-80 feet above sea level. This high ground, called Chokhrak, rises to more than 330 feet in the middle of the peninsula. There is always a wind blowing over Chokhrak, piling up hills of sand around it. Until recently there was no vegetation on the peninsula; only during the war were the first plants—melons and vegetables—cultivated near the workers' settlements. Had it not been for the varied and plentiful mineral deposits that make Cheleken Peninsula one of industrial Turkmenia's gems, it is unlikely that man would have chosen to live in this seemingly inhospitable land.

But the gifts it offers are so valuable that this bare, wind-swept and sandy stretch of land has been drawing people to it for ages.

In describing the lands lying to the east of the Caspian Sea, Strabo, the ancient Greek geographer who lived at the dawn of our era, wrote: "Workmen found oil near the River Ok. Indeed, if this land has alkali, asphalt and sulphur, then it must have deposits of oil, as well."

The Atrek, which drains into the Caspian Sea south of Cheleken, is the River Ok mentioned by Strabo. The old name still persists among the local population. Cheleken, meanwhile, is undoubtedly the land the ancient scholar referred to as abounding in mineral deposits. Even today it has an amazing variety of rare minerals. Academician A. Fersman, the great authority on the mineral wealth

of the Soviet Union, spoke enthusiastically of Cheleken as a place where everything "boils and gurgles. Everywhere one finds hot springs, saturated with different kinds of salt."

Oil and ozocerite were the riches that first drew the attention of investigators to Cheleken.

Russian travellers of the 18th and 19th centuries wrote of the oil deposits in the island (Cheleken was an island at that time). Bekovich-Cherkassky called it Neftyanoi (Oil) Island, when he found oil there.

The extraction of oil was first organized on an industrial basis at the close of the 19th century. Its pre-revolutionary boom period was between 1909 and 1912, after which a slump set in. The discovery of oil in Nebit-Dag kept the output in Cheleken at an insignificant level for a long time. It was not until the end of the first post-war five-year plan that Cheleken oil again insistently reminded the country of its existence, fully justifying Academician Gubkin's view that "as regards oil, Cheleken has not yet said its last word. Deeper drilling is all that is wanted."

Cheleken is famous to this day for its ozocerite fields. Ozocerite, or mineral wax, as it was called formerly, is a very rare mineral. A product of paraffin oil, it originated when crystals of paraffin separated and settled in the surrounding rock. It has many industrial uses, particularly for the production of ceresin, an indispensable insulating and waterproofing material for textiles. There are few deposits of ozocerite in the world, and the biggest of these in the Soviet Union is in Cheleken.

In recent years, Soviet doctors have been steadily extending the uses of ozocerite in the treatment of serious illnesses such as rheumatic and nervous diseases, diseases of the blood vessels, and so forth.

The extraction of mineral wax was started in Cheleken in the remote past. When Strabo spoke of asphalt deposits on the shores of the Caspian, he meant Cheleken ozocerite, which is also called *natural asphalt*. Descriptions of Cheleken by Russian geographers in 1834 contain a note on an ozocerite well near a place called Kara-Sitl. Camel caravans carried the mineral wax from Cheleken to Bukhara, where it was used as material for candles which were

supplied to the whole of Central Asia. The primitive, manual methods of extracting the mineral have been replaced by a method in which powerful jets of water wash away the rock and carry the ozocerite to the surface.

There are as many hot springs in Cheleken today as there were during the time of Strabo. In one the temperature of the water is 145° F., while the temperature of the water spurting out of the old oil wells is sometimes as high as 158-163° F. Some wells discharge hot water at definite intervals as though there were a gigantic pump deep in the earth.

Everything on Cheleken shows that at one time there were active volcanoes here. The tops of some, which, to all appearances, are now lifeless, are flat and seem to have been paved with asphalt. Actually, these are old craters with hardened lava. Water has accumulated in these craters, some of which now form perfectly round lakes. In one of them, Lake Porsugol, the water is rose-coloured and boils all the time. There are some active volcanoes, too. The crater of one is full of oil, and gases shoot out of it from time to time. The rock formation is so broken and mixed that it prompted N. Andrusov, who is well known for his investigations in Cheleken, to compare it with smashed pottery. Academician Fersman said that Cheleken was like a "heated pan."

It is quite true that everything on Cheleken boils and seethes. The land throws up gases, oil, hot and cold mud, and warm and cold chalybeate, iodic, bromide and sulphurous waters.

All these muds and waters have attracted the attention of the extracting industry. Besides Cheleken's ancient ozocerite fields, there are now two new industries (iodine and bromine), which were started during the five-year plans.

The fact that the well water in Cheleken contains iodine was discovered long ago. The skipper of a Russian vessel, which stopped there more than 200 years ago, reported that the water was unusual. It contained iodine and bromine. In tsarist Russia, this discovery did not make the impression it deserved, and until the Revolution the entire quantity of iodine extracted here totalled only 440 pounds. Since then output has increased scores of times, while bromine is extracted in even greater quantities. In addition to containing

25 milligrams of iodine, every litre of Cheleken water yields up to 1,000 milligrams of bromine. Such saturation enables us to regard the bromine reserves in Cheleken as inexhaustible.

In Cheleken the extracting industries are concentrated in the highlands. The flat stretch of the peninsula is a typical desert. The salt-impregnated clay easily turns into dust, which rises in the slightest breeze and takes a long time to settle. The peninsula can rarely be seen from the sea because this colourless dust deprives the air of its transparency. During a dust-storm, the sun resembles a rayless moon in a cloudless sky.

It is now some 12 years since Cheleken has become a peninsula. A broad sandbank, hidden by the water, stretched along the bed of the sound between Cheleken and the mainland. The waves of the Caspian rolled freely across the sound, but it was so shallow that vessels always ran aground whenever an inexperienced navigator mistook it for a clear passage and tried to pass through it. But the time came when even an inexperienced eye could see that there was no passage through the sound: waves billowed and rolled as before, but a long flat stretch of land was now in full view between the island and the mainland. It reflected the sunlight like water, yet it was no longer water but wet sand. The shoal had come into the sunlight. At first it was like a quagmire and there was no question of crossing it either by foot or in a vehicle. But as the months slipped by, the sand became drier and drier, until one day a daredevil driver on his way from Nebit-Dag risked crossing it in his truck. Naturally, nobody seriously thought then that there could be permanent overland communication between the mainland and the former island, but today the existence of such communication is an established fact. On their almost daily runs from Nebit-Dag to Cheleken, indefatigable trucks cross what until recently was a sea-bed.

Most of the people on Cheleken come from families of hereditary ozocerite or oil workers. They love their trade and their "island" (the indigenous population still calls it an island). It is quite possible that that name will endure, much in the same way as the people of Moscow still use the name of Kuznetsky Most (Kuznetsky Bridge) for a street where there is no river, and the name of

Krasniye Vorota (Beautiful Gates) for a square where there are no gates. Who knows but that the day may come when the conductor in a bus or, possibly, a guard in an electric train running from Nebit-Dag to Cheleken will call out: "Three stops to go: Cheleken Island, Ozocerite Sanatorium, and Recreation Park. Passengers intending to bathe in the sea, these are your stops!"

Of course, all this is still non-existent, but by no means wishful thinking. Already there is the new town of Cheleken rising on the strip of shore in the western part of the peninsula. The windows of the big new brick houses look out on the limitless blue Caspian, and there is a beach near by. The builders and first residents have laid out a temporary sports stadium. There is running water in the houses and the people are already planning to develop vegetation. The first 25 acres of virgin land were ploughed in the autumn of 1953 as an initial step towards organizing a suburban vegetable-growing farm. The youngest town of West Turkmenistan is most definitely coming into its own.

Like many other places in West Turkmenistan, Cheleken still does not have its own sources of fresh water. Once distilled from sea-water, it is now piped from the Balkhan foothills.

5

The mineral industries are the life-blood of the former island. However, a part of the population is engaged in fishing and the chief fishing village here is called Kara-Gel.

From time immemorial, fishing has been one of the main occupations in the many villages along the Turkmen seaboard, and today it plays an important role in the republic's economy.

In the Caspian, navigation is always fraught with unforeseen contingencies. Even on the calmest of days the sea suddenly, without any apparent reason, loses its sparkling greenish-blue parquet-like smoothness and begins to seethe and boil. Flat waves, as heavy as liquid glass, rise unexpectedly and cause a vessel to roll even when there had been no sign of inclement weather at the outset of the voyage. There may be no visible change in the weather; the scorching sun may still be seen in a pale blue sky and the air may

be perfectly still with nothing to indicate an approaching storm. Yet the sea begins to heave and swell, the waves steadily gaining in height and momentum and gathering foam on their crests. Sometimes, without the least warning, a vessel finds itself at the mercy of giant waves.

Even the crews of big steamers are not indifferent to this menace, but Turkmen fishermen often face a storm in an ordinary longboat or, worse, in a frail craft called a *taimun* or *taimil*, and emerge victorious. Known for ages as nomads and fine horsemen, the Turkmen people are intrepid seafarers as well. Let us recall 1936, when the word *taimun* was on everybody's lips in the Soviet Union. That year a group of 15 Turkmen fishermen made the long journey from Krasnovodsk to Moscow in their light craft, crossing the Caspian and then moving up the Volga, the Oka and the River Moskva.

There are enormous schools of fish of different species in the Caspian. These include the famous Caspian beluga, sturgeon and sevryuga, fish of the salmon family, as well as white fish—roach, perch, sazan (fish of the carp family), bream and ling.

However, the Caspian's main wealth is in its tremendous reserves of herring. Scientists consider its reserves of sprat as inexhaustible. Sprat fishing is restricted here not because fish are scarce but because of the limited technical possibilities of catching and processing them.

Grey mullets were introduced into the Caspian from the Black Sea in 1931-34. They have adapted themselves splendidly to their new home and are multiplying rapidly, especially in the central and southern parts of the sea.

Like the fishermen of other Caspian republics and regions, the fishermen of Turkmenia are busy throughout the year, bringing in fish from various parts of the sea at different seasons. In February and March, the biggest catch comes from the shores of Turkmenia opposite Ogurchinsky and Gasan-Kuli, attracting fishermen from all over the Caspian shore—Astrakhan, Makhachkala, Guryev, Krasnovodsk and Baku. Later in the year, an armada of big and small fishing vessels heads westwards towards Azerbaijan, where it stops in the vicinity of Lenkoran. After this, it moves on to Daghestan waters. A month or two later sees a fleet of Turkmen

fishing boats as well as the craft of Azerbaijan and Daghestan fishermen operating along the northern shores. Subsequently, they can be sighted from Fort Shevchenko. The Cheleken, Gasan-Kuli and Ogurchinsky fishing launches and boats return to their bases for a short rest after making a complete round of the Caspian and taking advantage of every fishing season.

Gasan-Kuli, which only recently supplied 85 per cent of Turkmenia's fish, has always been one of the republic's most important fishing centres. Ships bound for the town have to stop off-shore and transfer their passengers to big fishing vessels; but these, too, are compelled to stop after moving several miles in the direction of the shore. The sea is so shallow here that the sand grazes the bottom of these vessels. The passengers have no alternative but to trans-ship again, this time into flat-bottomed boats. These take them to the shore from where they continue their journey on wheels.

The level of the sea around Gasan-Kuli has dropped so much that it now resembles a huge shallow pond with tiny waves rippling it. If there is a wind, the waves grow bigger and roll far up the shore, baring on their return the wet clayey flats that extend for scores of miles along the coast and surround Gasan-Kuli on all sides.

The first thing that catches the eye of the newcomer is that all the old houses here stand on piles. At one time the sea had been close by and these piles protected the houses from the onslaught of the salt waves. Now the waters of the Caspian do not show themselves on the horizon even during the fiercest storms, and the space fenced off by the piles is used either as a shed or a pen for livestock.

Almost all the houses are single-storeyed and made of weathered planks or logs; they have weathered, thin-plank roofs. Each house is encircled by a narrow verandah, the balustrades of which are ordinarily used for drying fishing nets or for hanging out strings of fish. Not a single tree or shrub grows anywhere because here, too, there is no permanent supply of fresh water. The only sources are the abundant winter rainfall and the water distillery. The spot where the station stands was once close to the shore, but now it is far inland and the sea-water has to be piped to it. There are big tubs under the drain pipes of each house to collect the rain-water.

It is also kept in big metal cans which may be seen in every house, in almost every room. When the supply in the tubs and cans is exhausted, the people fetch their water from more or less distant wells along the road to Chikishlyar. They have to go much farther for their fuel—to the reed-covered banks of the River Atrek.

The women of Gasan-Kuli are famous as carpet-weavers. Carpets decorate the floors and walls of verandahs, houses, and the House of the Fisherman. Their tranquil beauty lends a special character to the appearance of the houses in this busy wooden town, where the smell of fish mingles with that of iodine.

Gasan-Kuli is the last big town in the southern part of the Caspian shore. The Iranian frontier, running along one of the tributaries of the Atrek, is some six or seven miles away, with the blue Elburz Mountains looming farther to the south.

The bird sanctuary in the region of Gasan-Kuli is another place along the Caspian shore that is bound to interest the traveller. It occupies an extensive area—from Chikishlyar in the north to the state frontier in the south, and to the Kara-Baba Hills in the east.

Beginning with the second fortnight in September, birds flock to the banks of the Atrek from the remotest regions in Asia and Europe. Geese, ducks, white and grey herons, heavy pelicans and rosy flamingoes spend their winter there. They begin their migration to the north for the summer nesting season at the end of March.

On the initiative of Professor Laptev, the Soviet Government founded a reservation here in the first years after the Revolution, but unfortunately the Atrek is getting drier with each passing year.

The feathered nomads have stopped coming here in their former numbers as they can no longer be certain of the supply of fresh water for the duration of the winter. Flamingoes, the most valuable of these birds, have become especially rare. In former years, these big, beautiful birds came here in such great flocks that in December or January the banks of the Atrek looked as though they were covered with a rose-coloured carpet, but in the last few winters scientists working in the sanctuary reported that their number had dwindled to only a few scores. Pelicans, too, are coming here in fewer numbers.

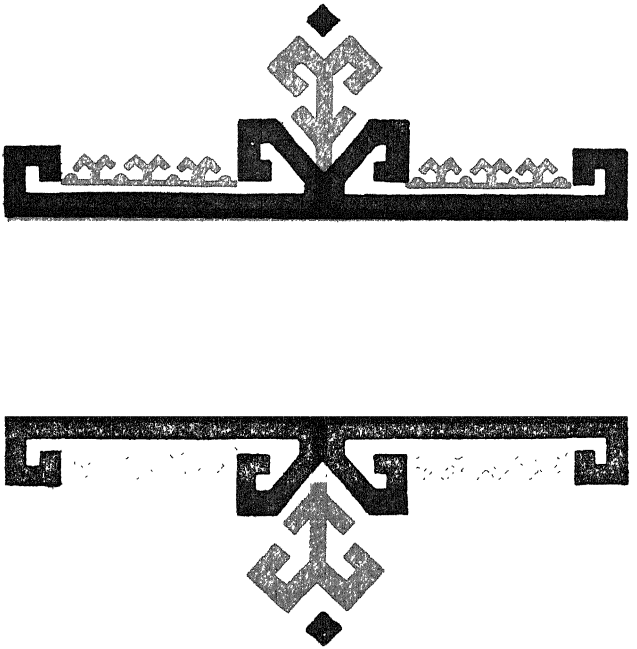
The scarcity of water in the Atrek drove the birds away in search of other sanctuaries. Many of them now spend the winter in the region of the Great and Little Delili lakes along the upper reaches of the Atrek, about 20 miles from Gasan-Kuli.

The shallowing of the Atrek has forced the fish living in the coastal waters to change their habits, too. The fresh water in the delta once attracted huge schools, that came here to spawn. Now the fish have gone to other places. A special canal had to be dug to meet the needs of fish-breeding.

However, far from decreasing, the catches brought in by the Gasan-Kuli, Cheleken, Chikishlyar, Kizyl-Su, Ogurchinsky and other coastal collective fisheries are steadily growing in spite of the falling level of the sea. This is a result of the advantages of collective fishing and advanced technique over the ancient methods of individual fishing. Fast motor boats and drifters, as well as scouting aircraft, enable the collective fishermen to triumph over the caprices of the sea. The motor-fishing stations set up by the Government are rendering collective fisheries a great measure of assistance.

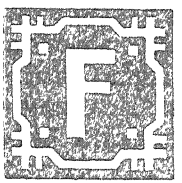
During the fishing season the catch is processed at plants in Gasan-Kuli, Kizyl-Su and Krasnovodsk. In the shops of the Krasnovodsk plant it is salted, smoked or tinned.

In Soviet years, the one-time primitive fishing industry of the Turkmen seaboard has grown into an important and highly mechanized arm of the republic's food industry.



# Chapter I

1



ROM KRASNOVODSK the train speeds for more than 60 miles in the shadow of the steep Kuba-Dag Mountains, which imperceptibly give way to the Kyuryanin-Kyure Highlands. To the south of the railway, the passenger at first sees the calm, blue waters of the bay and then a colourless plain of clay and sand, which, like a tiresome companion, claims the attention of the traveller in Turkmenia day after day. It is always there, now to the right, now to the left of the train. At the oases it withdraws to the horizon only to reappear as the train pulls out of these havens.

There is little to gladden the eye in this part of Turkmenistan. The mountain slopes seem to be as lifeless as the arid lowlands. The spectacle of a camel grazing among the stones is as much a source of wonder as the sudden sight of solitary *kibitkas* or brick dwellings in the bare steppe. What food can the camel find among the stones or in the sand-sprinkled clayey soil? How do people live in this desert where there is neither water nor vegetation?

This part of the Caspian seaboard could not have provided sufficient food for a numerous population even today. However, the water requirements of the few settlements are satisfied by the wells found at rare intervals, while the sparse vegetation is enough for the camel, the "ship of the desert"; the trouble is that the tough grass and the shrubs, the camel likes so much, blend to such an extent with the rocks and dry clay that the human eye finds them hard to notice.

A journey of several scores of miles inland up the northeastern

slopes of the Kyuryanin-Kyure Highlands brings the traveller to the Chil-Mamed-Kum Desert. At first glance the dry, twisted stems of the rare, stunted shrubs sticking out in the sand seem as inanimate as last year's brushwood; they are ideal for a camp-fire and look as though not a milligram of nourishing juices could be squeezed out of them. Yet, this is where camel-herders prefer to graze their stock. Although they bring no gladness to the eye, the wormwood, salsola, kandym, and other grasses and shrubs are what the camels like best. Many of the neighbouring animal-breeding farms send their stock to graze in these sands, which adjoin Krasnovodsk Plateau on the east. One of the largest camel-breeding state farms is located in the vicinity of Djebel.

Djebel is the first important railway station after Krasnovodsk. It stands at a point in the Caspian lowlands where the spurs of the Krasnovodsk Plateau end and another chain of mountains, much more imposing than the Kuba-Dag, advances from the north. This is the Great Balkhan Range, the stamping ground of hunters and herders, to which many Turkmen poems and folk songs are dedicated.

The Great Balkhan Range occupies an area of 1,350 square miles and measures 45 miles from east to west and 30 miles from north to south.

South of the Great Balkhans, there is a lesser chain, the Little Balkhan Range, stretching in the same direction. The railway runs through the corridor formed by the two chains.

The Great Balkhans are not very high—the tallest peak is but 6,168 feet above sea level. But this altitude is sufficient to detain part of the atmospheric moisture, which in other places is wastefully swept away by the wind. Compared with the surrounding plains, the Balkhans have a high precipitation. The traveller who braves the rocky slopes of these steep mountains with their numerous ravines will, upon reaching the summit, be rewarded by the sight of an extensive plateau overgrown with grass and shrubs, and evergreen junipers rising to an impressive height. This vegetation stretches from the top of the Great Balkhans into the ravines, clustering near the springs and wells which supply water for the greater part of the year.

Local legend says that these mountains were once the principal seat of the biggest Turkmen tribe—the Tekkes. It is difficult to say how much truth there is in this, but it may be that it relates to a remote age when the Balkhans were washed by water flowing down the Uzboi from Lake Sarikamish.

The bed of the Lower Uzboi, now a dry defile, is crossed by the railway line at the point where it enters the gates between the Great and Little Balkhans. Skirting the Great Balkhans on the south, the bed runs northwest towards another defile, a wider one this time, which was once a bay. If we were to picture these defiles as filled with water, we would see that the Great Balkhan massif was once a peninsula; it faced the sea on the west, while its southern and eastern slopes were washed by the Uzboi.

Here the ancient river bed is not as impressive as in other places. West of the Balkhans, there is hardly any sign left of the bed. Sometimes even guess-work is needed to find the river's banks, for instead of steep declines there are gentle slopes, which in places merge completely with the surrounding plain. Chains of half-dried salt lakes and marshes remain here and there to indicate that there was once a river here. Some of them have become spas; the salts in them are very effective in the treatment of rheumatism, gout, and skin and other diseases.

On the shore of a small salt lake a few miles from Djebel there is a sanatorium called Molla-Kora; a branch line connects it with Djebel. Often the people who come here for treatment from Ashkhabad, Nebit-Dag, Krasnovodsk, Mari, Chardjou and other places in Turkmenia, are unaware that this small lake with its medicinal salt water was once part of a famous ancient channel.

2

Like almost every place in West Turkmenistan, the Molla-Kora health resort has a scenery all its own. It bears very little resemblance to any of the other health resorts in the Soviet Union.

When we speak of a health resort we have in mind as a rule a place of exquisite beauty where nature has been so lavish with her gifts that the very sight of them suffices to banish or curb ailments.

In Molla-Kora, however, nature is neither rich nor sumptuous. There is nothing in the vicinity of the modest sanatorium cottages except *barkhans* overgrown with saksaul. True, many of these plants are tall and luxuriant, but there is no getting away from the fact that they are saksaul-trees and not palms. A small, elongated lake with bitter-salt water lies amid the sands. Towards the end of the summer the water seems to take on a reddish hue as though wearing a coat of rust. Properly speaking, the Molla-Kora resort is partly in the Kara Kum and partly in the old bed of the Uzboi, and only to the north is the horizon hedged in by the spurs of the picturesque Great Balkhan Range.

The spa season opens in May and ends in October. During the summer, the average temperature is 104° F and there is no relief from the heat even beneath the branchy saksaul-trees or in the kursaal verandah. These 104° F are shade temperature; in the sun it is much hotter.

How then, one might ask, can such a climate attract anyone in need of treatment and rest? Yet the fame of this resort is spreading far and wide. There is good reason for this. All in all, the curative powers of the salt lake, the warm mud-baths, the transparent, pure air in the sunbathed desert and the abundance of warmth and sunshine are so beneficial that not a few patients, brought for treatment on stretchers, make the journey to the station on foot to catch the home-bound train, without the aid even of a walking-stick.

Molla-Kora patients carry away with them a grateful memory of the medicinal muds as well as of the undeniable beauty inherent in the landscape. Those who see the *barkhans* in the Kara Kum for the first time are ready to exclaim that nothing can live in such a desolate place. But these places are not lifeless. The sands are not dead. There is real charm in the delicate tones of the sand under a cloudless sky, in the gracefully curved trunks of the saksaul-trees and in the undulating horizon, so happily broken in the north by the bold line of the Balkhan spurs, which begin just a few miles from the sanatorium, beyond the railway.

Undoubtedly, Molla-Kora has a great future, a future that is already taking shape. The resort did not have its own source of fresh water; it had to be brought by rail. A water pipeline was

installed in 1953, opening, as it were, a new era in the life of the resort.

The appearance of the nearby large town of Nebit-Dag is, likewise, helping in a large measure to promote the growth of Molla-Kora. Nobody came here before except people needing treatment, and there was nothing but a sandy waste all around. Djebel was the only inhabited point in the vicinity. But now there is a big town only 16 miles to the east. Every week-end during the summer, the working people of this oil town make their way along the asphalted highway to Molla-Kora by car, motorcycle, bicycle or on foot. As far as the people of Nebit-Dag are concerned, the drooping saksaul-trees and the mirror-like lake amid the *barkhans* possess all the charms of living nature. Incidentally, the water in the lake is so saturated with salt that it is possible to lie on it as on a bed of down. "It yields under you," the bathers say of the water, "but it won't let you drown."

Bathing without doctor's orders is, however, not recommended. As a rule, holiday-makers use the shore of the lake as a beach and lie in the shade of the saksaul-trees and willows, which afford a little shelter from the scorching sun after all.

3

After the journey across the desert along the western sector of the railway, Djebel gives the impression of a bustling, verdant railway station.

However, the usual picture conjured up by the word verdant can be applied only conditionally.

At the time the railway was being built, the fairly adequate supply of water, which the town receives from the Balkhans, enabled the inhabitants to lay out a garden near the station. The forty or fifty big trees growing on the scorched land always evoked the wonder and admiration of passing herdsmen and train crews working on the Krasnovodsk section of the line. The people of Nebit-Dag, too, would gaze with envy at the dusty crowns of the acacias, honey locusts, and thujas in Djebel. But in recent years, Nebit-Dag, which has grown by leaps and bounds, has outpaced Djebel in vegetation, too.

The only thing the people of Nebit-Dag envy now is the climate enjoyed by Djebel; it is protected from the violent storms of winter by the enormous wall of the Balkhan massif. It sometimes happens that when gales unperch birds from the telegraph wires in Nebit-Dag, not a twig rustles in the station garden at Djebel.

From the day it was founded, Djebel has been a small settlement near the railway station. Its importance will be enhanced in the near future, since deposits of a rare clay known as bentonite have been discovered in a place called Oglanli, about 22 miles to the northeast.

Workers in the iron and steel industry set great store on bentonite. Better quality castings are obtained when it is mixed into the moulding earth from which mould boxes are made. Bentonite clay has its uses outside the iron and steel industry as well. It is used in refining technical and edible oils, in soap-boiling, and as a remedy against laceration, burns, certain suppurations and gastric complaints.

Soviet doctors have discovered that bentonite can be made to yield a very effective medicinal substance, which they have called djebelite.

Besides metallurgists, therefore, the development of the bentonite deposits is of interest to food industry workers and even doctors.

Furthermore, Djebel has another neighbour: the Tuar-Kir Coalfield, which lies to the north of the railway junction. The exploitation of this coalfield is complicated for the time being by the complete absence of water and by transportation difficulties.

4

A few miles out of Djebel in the direction of Ashkhabad, the traveller catches sight of two flat-topped hills silhouetted faintly against the southern horizon and set in a perfectly level plain of clay and sand, which gradually gives way to a salt-marsh. These are the famous oil-bearing hills of Nebit-Dag and Munzhukli, separated from each other by a distance of nine miles.

Travellers who visited these places in the 18th and 19th century noted the existence of oil in Neftyanaya Mountain (the Russian

translation of Nebit-Dag, sometimes incorrectly translated as *Neftyanoi Bugor* or *Oil Mound*). Right up until Soviet times, the attention of industrialists and scientists in the Transcaspian was focused exclusively on the oilfield in Cheleken. Nobody took Neftyanaya Mountain seriously. Baranov, a traveller, made this entry in his diary way back in 1825: "Turkmen have extracted oil here since the time Neftyanaya Mountain was an island; when Lake Baba-Hodzha became shallow and turned into a vast, slimy salt-marsh, the extraction of oil ceased because there was no way of transporting it."

Trial borings were made in the region of Neftyanaya Mountain at the time the Central Asian Railway was laid. But these were soon given up as unprofitable. Nothing was done until Soviet geologists turned their attention to the area. Drilling was renewed in 1927, but a long succession of failures ended in a decision being taken to drop the project.

However, at the time the liquidating commission was about to pass final judgement on Neftyanaya Mountain, a gusher suddenly spouted out of one of the wells. That happened in May, 1931. In the course of three and a quarter hours, the gusher threw up 500 tons of oil and decided the destiny of Neftyanaya Mountain. Not only was it decided to continue drilling, but also to extend the field of operations with all possible speed. All further drilling, however, proved futile, and yet when people again began to say that there was no sense in continuing the work, Well No. 12 suddenly spouted a huge fountain, which gushed continuously for 56 hours, yielding up to 5,000 tons of oil per 24 hours and filling all the available reservoirs. The oil was directed into hastily dug holes, but it filled them to the brim and overflowed in all directions, streaming down every incline and ditch. It looked as though an oil volcano had erupted.

Since that day nobody questioned the profitableness of the Nebit-Dag enterprise and it may be said that Neftyanaya Mountain fully justified the hopes that were placed in it. Another gusher, one of the richest in the world, spouted on January 30, 1933, and marked the beginning of the steady rise in the oil output at Nebit-Dag.

5

Nebit-Dag, which was built in Soviet years, is a town without suburbs.

The same monotonous landscape the traveller saw one, two or three hours ago—clayey or sandy expanses of wilderness advancing right up to the railway with the Great Balkhan Range growing more and more majestic to the north—opens on either side of the line when the train pulls out of Djebel. Suddenly, a town dwelling comes into sight against the background of the mountains about a third of a mile from the railway. The train passes a second dwelling before the traveller has time to ask himself why a brick house was built in the desert. Then more houses flash by. The train is still speeding across a desert, but more and more houses line its route, forming a street. As the train moves on, the passenger finds the entire expanse of the former desert between the railway and the mountain slopes filled with handsome two- and three-storey town dwellings. One street is intersected by another and both are paved with asphalt, while young trees border the sidewalks. The light dresses of schoolgirls running to catch a bus swirl in the breeze. A fleet of bicycles speeds by, the spokes sparkling in the dazzling sun. The cyclists are overtaken by a car. Trucks follow one another along the street, passing by the white stone walls enclosing the bright brick houses. The traveller sees a beautiful town stretching for many miles from west to east parallel with the railway, and learns that this is Nebit-Dag, now one of the most important towns in Turkmenistan. It was built in the course of the last 18 years on what was desert land.

Thirty-eight years ago, the 26 heroic Baku Commissars, who were arrested by foreign hangmen, were taken past these mountains, past these very places, and murdered in the desert, where their captors thought to conceal their dastardly deed.

Oh, if only they could rise from the dead! Only a few dozen miles from the railway siding of Akhchi-Kuim, the place where they were murdered, they would see a town called to life by the great force for which they fought and died.

The interventionists sought a remote place in which to commit their crime, a place where nobody would search for the graves of

their victims. They found what they believed to be the ideal place at the far end of the wide corridor formed by the Great and Little Balkhans. The signal was given to stop the train; the doors of a sealed carriage were thrown open and the 26 captives taken into the sand and shot. Their lives came to an end, but their names and deeds became immortal.

There was sandy desert all around. It was night. The imperialists thought that they had covered up all traces of their crime, if not in water then at least in sand, which holds secrets no worse than water. In murdering the men they had tricked into captivity, they buoyed themselves with the hope that they were killing the idea which had given these men the strength to fight and live without fearing death. But great ideas that impel men forward are deathless. What is more, ideas that summon men to march ahead can turn the dead into the living. Automobiles carrying workers from Nebit-Dag to the oilfields now speed along a tarred highway built where once, before the Revolution, a shrieking wind had rolled huge, hedgehog-like eryngiums through the sands. The aerials on the roof-tops of the new town now screech in the wind here. And over them aircraft now pass, carrying men of business of the Turkmen Socialist Republic from east to west, from Ashkhabad to Moscow. Another common sight is a plane flying west to east over the houses with people from Moscow, Leningrad, Kharkov and Baku, who hold the affairs and interests of Turkmenistan as close to heart as the affairs and interests of their own regions.

The remains of the 26 Commissars were carefully taken to Baku, the capital of Azerbaijan, in September 1920 and interred in Freedom Square, in the heart of the city.

## Chapter II

### 1

Nebit-Dag station was built on a site where 20 years ago stood the unattractive building of "Railway Siding No. 13." Near by, half-buried in the sand on the weather side were three or four little houses for the employees.

A settlement began to form near "Railway Siding No. 13" in 1935 when the oilfield on Neftyanaya Mountain finally proved to be workable. The siding was renamed Nebit-Dag Station and the settlement became known as Nebit-Dag when it grew into a bustling town.

Let us join the traveller who stops to visit Nebit-Dag today.

Railway Station Square. A dozen young trees form a little garden which was laid out in a spot that was part of a waterless desert for thousands of years. The fine, dry Kara Kum sand in the path around the garden has been neatly pounded into place. Until the day the Soviet people, the real masters of the land, came and brought life with them, the sand was the sovereign ruler here.

Station Street runs due north from the square and ends at the beautiful Oilmen's Palace of Culture. It is intersected by the Street of the Twenty-Six Baku Commissars, beyond which lies the Pervomaiskaya, the town's oldest thoroughfare. To east and west stretch rows of bright, attractive brick houses. Light and yet massive at the same time, they remind one of the new blocks of flats in Krasnovodsk. Ornate fences, with trees on both sides, separate the houses. In this young town, the wealth of young trees amazes the visitor as much as everything else. The broad asphalt streets with their new, big houses make one forget that Nebit-Dag is in a desert. In one street a poplar reaches the top windows of a rose-coloured two-storey house with deep verandahs. Along the same street there are honey locusts, tamarisks, wild olives, acacias, mulberries and English elms. With trees being planted everywhere in the Soviet Union, the trees lining Nebit-Dag's streets may not arrest the attention of the newcomer. He will not find anything extraordinary about them, especially as they are not very shady or luxuriant. But people who have been here before will virtually marvel at the sight of tens of thousands of green saplings growing in the streets and gardens, for only some twenty years ago there was nothing in this spot except the sand and the heat. This was the dreariest and most barren region of the Kara Kum, where everything breathing seemed to be doomed by nature itself.

Nebit-Dag's first garden was laid out 19 years ago. It measured 70 paces in length and 50 paces in breadth. The site had a three-foot

layer of sand which was cleared away with spades and taken out of the town in trucks. The bared soil was fertilized and holes were dug for the plantings. The following year the first trees (honey locusts, mulberry-trees and acacias) to appear here in the history of man broke into leaf. A year later, Nebit-Dag received a new park. A total of three thousand trees were planted on an area of 15 acres, marking the start of a struggle by Soviet Michurinites against the sterility of the desert.

The struggle is still on, but there can be no doubt as to its outcome. With the achievements of advanced science to draw upon, the people are steadily gaining the upper hand.

By 1951, there were 30,000 trees decorating Nebit-Dag's streets. There is still little shade to be had from them, but they have come to form an indivisible part of the townscape. For a long time the development of greenery was hindered by the water shortage. There was only one well to supply the needs of a population that was growing from day to day. However, new sources of fresh water have been found in the vicinity and today Nebit-Dag has its own water-supply system.

It was generally believed that only special species of drought-hardy plants could grow in Nebit-Dag. That has been disproved by the experiments of Yemelyan Nuikin, a gardener. Today, there are pomegranates, peaches and fig-trees in the town. In 1953, Nuikin picked half a ton of grapes from his little vineyard; in his garden he grows mallows, oleanders and petunias. Facts show that water is all that is needed to make any flower or vegetable grow in Nebit-Dag. The immediate future will see big orchards providing the population with locally grown fruit.

The oil town's greenery enthusiasts are already planning to plant thickets in the town itself and a recreation park in the suburbs.

Room is left for fruit-trees and flower beds beside every house under construction. The architectural ensemble of the Oilmen's Palace of Culture will include swimming pools, fountains, and creeper-overgrown verandahs. The apricot, apple, plum, lilac and other trees and shrubs that were planted in courtyards some years ago have grown rapidly and during the summer the passer-by can no longer distinguish the houses behind them.

When evening falls and the gold and rose colours of the sunset on the Great Balkhans are suddenly (as is usual in the south) swallowed up by darkness, the town becomes bright with the sparkle of the street lamps. Students, school children and day-shift oilmen begin to leave the houses in order to enjoy the coolness of the evening. This is the time when the clubs, cinemas and libraries throw open their doors.

2

Nebit-Dag owes its rapid growth in the last few years to the advance of the Turkmen oil industry as a whole. The republic's oilmen fulfilled their first post-war five-year plan in three years. In 1950, there were three and a half times more active wells than in 1940. This rise in the oil output at Nebit-Dag is due to the fact that new Soviet-made machinery has replaced the ancient methods of boring and prospecting, and, principally, to the political and cultural growth of the whole Turkmen people.

The real birth of the Turkmen proletariat dates back to the period immediately after the Revolution. The Soviet Government launched upon the industrialization of Turkmenia's desert expanses as soon as the Civil War ended. Young Turkmen left their *auls* and towns to learn the secrets of factory production in the cities of Central Russia, the Urals, the Ukraine and the Caucasus. Every Turkmen worker of the older generation learned the rudiments of his trade during the first five-year plans. The teachers were workers in Ivanovo, Moscow, Sverdlovsk, Baku or Grozny. The solicitude of the Communist Party and the Soviet Government, as well as the assistance of the Russian working class and of the other fraternal peoples, resulted in the creation of a developed Turkmen national industry within an incredibly short period. In 1925, the first anniversary of the Turkmen S.S.R., the republic's industrial enterprises already had tens of thousands of workers. Yet not long before that, at the beginning of the 20th century, Turkmenia had not more than 2,000 workers, a tiny fraction of whom was drawn from the native population.

Former inhabitants of the *auls*—hereditary herders and tillers of the soil—are now drivers on the railway, captains of seagoing ves-

sels, workers in Cheleken, foundrymen at the Ashkhabad Machine Works, oilwell drillers, engineers or geologists.

Nebit-Dag's first skilled oilmen were experts from Baku and Grozny. They passed their experience on to the men of labour who have won distinction and of whom the Turkmen Republic is justly proud.

One of them is Hidir Berdiyev. He was born in the coastal *aul* of Chikishlyar into the family of a fisherman. Hidir looked after the local bey's sheep and camels, and his father was almost always out at sea in his *taimun.* The boy was a good desert shepherd and nothing more. As a youth his range of worldly experience and education was limited to the knowledge that was passed on from one generation to another in the hovels of the Caspian fishermen and *chabans.* The Revolution smashed the age-old way of life of the Turkmen *dekhan* and *chaban.* Young people eagerly awaited for news of the great changes that were taking place in the republic and in all the vast Soviet land. They dreamed of a new life and of trades which had been closed to people from the *auls.* Hidir made up his mind to join an oil-prospecting party that was working in the vicinity of Chikishlyar. His father objected but he had his way. Every person, no matter where he lived, in a town or an *aul,* could not help being affected by the great transformations of those years.

In 1931, Hidir got a job with a drilling team. It was hard but interesting work and it attracted the former shepherd. The important thing was that he came to understand that Soviet economy needed oil and that the men who helped to increase its output were front-rank fighters for socialism. Hidir worked conscientiously, heeding the advice of men who knew their jobs better than he did. The Grozny and Baku drillers, who worked in West Turkmenistan in those years, gladly taught the willing young Turkmen worker. Hidir soon went to Nebit-Dag where he was given a more responsible job. There he worked his way to the position of driller's mate and then driller. Today, the outcome of the efforts of many people and of the work of costly equipment depends on his knowledge, experience, skill, discernment and efficiency. He became team foreman in 1946, while as deputy to the Nebit-Dag Town Soviet he helped to promote the town's growth. In 1950, the people of Nebit-Dag elected

him their deputy to the Supreme Soviet of the Turkmen S.S.R. Later, Hidir and his team were transferred to the Kum-Dag oilfields, where in 1953 they again moved to the fore among Soviet oilmen.

The people of Nebit-Dag honour and respect the front-rank workers who many years ago came to the oilfields from other regions and territories in order to teach younger men. One of them is Fyodor Chertov, a veteran of the Twenty-Six Baku Commissars Oilfield No. 1. During the Civil War he fought for the establishment of Soviet power in the Transcaucasus, and his work as a revolutionary often brought him into contact with the men in whose memory the oilfield, where he later became a distinguished worker, was named. Many young Turkmen oilmen owe their successes to the experience and knowledge of this hereditary Russian worker. Quite a number of Fyodor Chertov's pupils are among the leading oilmen at Nebit-Dag. Old age made Fyodor Chertov retire on pension and he left Turkmenia. But his friends and former pupils have not forgotten him. Although he now lives in a little cottage near Kislovodsk, he has many visitors from Nebit-Dag every year. The oilmen of Turkmenia regard him as one of the pioneers of the Turkmen oil industry and always go to see him whenever they spend their holiday in that Caucasian resort, bringing him news from the town at the foothills of the Great Balkhans and from the oilfields to which he had devoted so many years of dogged labour.

3

In many ways, Kum-Dag resembles its elder sister, Nebit-Dag. Today it looks as Nebit-Dag did 12 or 14 years ago. Only a part of one street is paved with asphalt; the other streets, if they can be so called, are simply broad lots of sandy ground running between rows of single- or double-storey houses set wide apart. In Nebit-Dag it is several years now since the desert has ceased making itself felt; it can be seen only from the outskirts. But in Kum-Dag it is still in evidence everywhere. Kum-Dag arose in the desert only yesterday, as it were. The Kara Kum still feels very much at home in it. The slightest breeze is enough to raise columns of sand. If a wind lasts for several days, as it often does in the Kara Kum,

the sand is piled against the doors of the houses and has to be swept away much like snow after a blizzard in the northern parts of the U.S.S.R. Yet everywhere the desert is beating a hasty retreat. Slender plantings line the principal thoroughfare which is a continuation of the highway from Nebit-Dag, or stick out of the sand in front of the school and in the space before the club. These saplings form the future town walks, which in a few years will resound to the cool rustling of greenery. Some years ago, the boulevards of Nebit-Dag looked much like them.

Ten years hence Kum-Dag will be a replica of present-day Nebit-Dag. Every person in the town is sure of it. Already now, Kum-Dag has electricity and gas, a library, a club, shops, schools, and a restaurant. There are many features in the two towns' architecture, industry and history that are common to both. Like Nebit-Dag, where the first buildings were a hospital and a school near the hostels for the town's pioneers, Kum-Dag started out with a school.

Big, Moscow-made buses ply between Kum-Dag and Nebit-Dag. The trip takes an hour. If there is a wind, the sand covers the highway and gives the impression that there are thousands of snakes writhing in it. If the wind is strong, the highway will be completely buried by the sand. On such a day visibility is reduced to practically nil and the buses have to be driven at a snail's pace. During a storm the desert looks like a smooth, swiftly flowing river of sand that bolts out everything, even the huge, square compressor installations, the largest structures in Kum-Dag, and the Great Balkhans that can be seen from a great distance on a clear day.

4

Frequent bursts of strong wind, blowing from the desert, are one of the features of the climate in this part of West Turkmenistan.

Kara Kum winds are a formidable menace. If they meet no obstacles in their path, they spend their fury over the Caspian, forming ripples on the waves like torrential rain. But if their path is blocked by a mountain, house, boulder, or even a tree or little bush, they flay it with the millions of grains of sand that they carry on their powerful wings. A storm may knock any one of these obstacles out

of shape or bury it under the sand. Similarly, winter storms in the northern steppes convert bushes, sledges and even huts into smooth snow-drifts. But the difference between sand- and snow-drifts is that objects hidden by snow come to light with the onset of warm weather, while those covered by sand have to be salvaged at the cost of a tremendous effort.

Had the Great Balkhan Range, towering north of Nebit-Dag, been situated somewhat differently, it would have formed a reliable wind-shelter for the town and the oilfields. A turn of 30° would have made the air over the Nebit-Dag oilfields as calm as at Djebel. As it is, the Great Balkhans and the Little Balkhans, lying farther south between the Kelkor Salt-Marsh and the Kara Kum, form a corridor along which the sand-laden winds gather speed and weight and freely burst upon the oilfields. They are particularly violent in winter, when huge masses of air over the cooled Kara Kum begin to shift towards the warmer Caspian coast. At this time of the year, the corridor between the mountains becomes a natural wind-pipe. Besides carrying sand, the wind sucked into this corridor moves stones and pebbles. *Barkhans* weighing up to a thousand tons are shifted over long distances in a few days. In November 1952, a four-day storm in the Kara Kum moved a *barkhan* (seven feet high and 44,000 cubic feet in volume) over a distance of 167 feet.

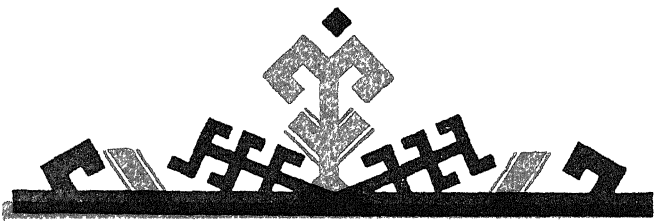
When the Nebit-Dag oilfields were first opened, the bakery built close to Vyshka Settlement was buried by sand during a particularly furious storm. Only a part of the roof remained in sight. Building materials were in such short supply in those years that the bakery was not abandoned. A hole was made in the roof and the bread baked as usual.

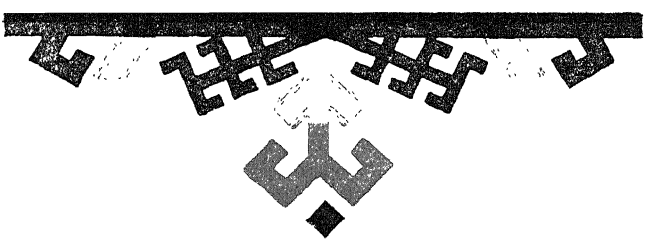
In Turkmenia, the sand is as much a feature of the landscape as eternal frost is in Yakutia.

Soviet scientists are studying the ways and means of securing the sands and of fighting sand-drifts. Special research centres have been set up to test various methods of securing the shifting *barkhans*. There are such centres at Djebel and at Nebit-Dag. Scientists first faced this problem during the years when the Central Asian Railway was built. Already then it was noticed that obstacles placed

in the path of the wind provide effective protection against sand-drifts. When such an obstacle, be it a tree, a bush, a structure, a fence made of reeds, or an earthen bank, is put up some distance away from the threatened object, it acts like a pier against which the wind, like the waves of the sea, breaks and loses its solidity and power. It was also noted that vegetation—saksaul, supple acacias, salsola or kandym—offer the staunchest resistance to a storm. That explains why scientists are so insistently studying drought-hardy vegetation. Hundreds of thousands of trees have already been planted along the railway, but this is still not enough. It is planned to plant broad protective belts of vegetation around Nebit-Dag, Kum-Dag, and at the approaches to Cheleken. Turkmen foresters are now working on this task. Saksaul trees and shrubs, sown by plane, will play a major role in the struggle against sand-drifts.

The extent of the investigations undertaken in West Turkmenistan may be gauged from the fact that scores of expeditions are sent to the Kara Kum every summer, while the expedition that compiled a soil map of the region in the summer of 1952 alone had 400 scientific workers from the Turkmen Academy of Sciences.





The division of the Turkmen people into tribes left its imprint on the pre-revolutionary history of Turkmenia. The chief tribes were the Tekkes, Yamuts, Salors, Goklens, Ersaris and Chaudors.

Sometimes they formed alliances, but more often than not they fought among themselves for the best pastures and wells, which were the sources of life for themselves and their herds. This hostility between the tribes was fanned by the beys and headmen, who used it to further their own interests.

In Soviet years, the Turkmen people were united for the first time in their history.

Only a few geographical, economic and household and visual names remain as reminders of their separation into tribes. For instance, the long belt of foothills stretching along the northern slopes of the Kopet-Dags is often called the Akhal-Tekke Oasis. Akhal-Tekke is also the name of a famous breed of Turkmen horses. Another breed is called Yamut, after the name of the tribe that evolved it. There is a distinction between Tekke and Yamut carpets. Elderly Turkmen can unerringly differentiate between Tekke and Yamut robes or lamb-skin caps: the Yamut cap is low and wide, while the Tekke cap is tall and somewhat narrow. But these names and differences do not carry the same meaning that they did 30 years ago. The survivals of the division into tribes are receding into the past.

The rapidly growing town of Kazandjik is the first big inhabited point in direct proximity to the Kopet-Dag foothills. It was not so long ago that this was only a small town linking the Turkmen seaboard with the so-called Akhal Oasis in the Kopet-Dag foothills. By its position, relative abundance of fresh water, climate and economy, which now includes not only livestock-breeding and the extracting industries on the coast, but also agriculture and fruit- and vegetable-growing, the country around Kazandjik could be considered as part of the Kopet-Dag belt. By tradition, however, the Akhal-Tekke Oasis begins in the region of the town of Kizyl-Arvat, which is several scores of miles east of Kazandjik.

After the sparse vegetation of the seaboard, the region of Kazandjik is an example of how generous the Turkmen soil can be if it is given water.

Kazandjik gets its water from *kyarizes*. These are very unique, ancient underground canals made through the joint efforts of man and nature. They are not to be seen anywhere except on the slopes of the Kopet-Dags and in some places in Tajikistan and Uzbekistan.

Accumulating in the mountains, the water washes away the layers of chalk and gypsum and flows not only in the channels of streams and rivers, but also in underground corridors that sometimes run deep under the Kara Kum.

*History of the Tajik People*, a book by B. Gafurov, has the following description of *kyarizes*: "*Kyarizes* are a system of wells dug 10-15 feet apart, depending on the level of the underground waters. They are interlinked by an underground gallery which carries the water from one well to another. These were dug in a chain over distances of 5-10 miles, sometimes more, and the water, passing from well to well, finally appeared on the surface in a small canal, from which it was directed to the fields."

Further, we get the passage:

"The amount of labour spent to irrigate fields by means of *kyarizes* was so great that some investigators are drawing a parallel with the work that went into the building of the Egyptian pyramids. Today, this method of irrigation is used in Central Asia only in places where there was and still is an insufficiency of water for agriculture. For example, the *kyariz* system has not lost its importance in Nurata District, Uzbek S.S.R. In the Turkmen S.S.R., *kyarizes* are used extensively."

Gafurov also describes *kyarizes* of another kind. These are underground canals which get their water from a rich subterranean source and take it to fields whose relief prevents their irrigation by usual, open canals.

Both kinds of *kyarizes* are in use in Turkmenia.

A traveller, faint with thirst, may drag himself wearily up the slopes of the Kopet-Dags without suspecting that there is a mighty subterranean stream close by, perhaps under the very ground he is treading. Running down the mountains, these concealed streams finally disappear into the sand, forming dead salt-marshes in the lowlands, or underground lakes. It is very much in the interests of

the people that every such underground stream is found and the water utilized down to the last drop.

Through the centuries, underground water has been the object of search by local naturalists, some of whom became expert dowsers. In the Akhal-Tekke Oasis the names of the great dowsers were as much household words as were the names of the famous gold prospectors in the Siberian taiga. By certain signs that were known only to them—the hue of the stones on a mountain slope, the distribution and shape of shrubs, the sound of the stony soil against which they struck their divining-rods, or the direction taken by insects, great swarms of whom fly or crawl about the Kopet-Dag foothills—they determined the exact spot where a well should be sunk through the stony upper layer of the soil in order to reach the underground waters.

In spite of all the inconveniences it presents, the *kyariz* system has one great advantage. It does not lose any water through evaporation. The extreme importance of this becomes apparent when we take into account the dryness of the Turkmen climate and the heat. In Kazandjik and Kizyl-Arvat, the mean annual temperature is 61° F. Even in January, the coldest winter month, the temperature seldom falls below freezing point. The humidity of the air is extraordinarily low. Under the circumstances, a stream running down the mountains in an open channel would lose more moisture through evaporation than it would give the fields. In *kyarizes*, which are concealed from the rays of the sun, no water is lost, except, of course, the portion that seeps through into the soil.

Kazandjik has both open streams and *kyarizes*. That is precisely why many settlements and towns of West Turkmenia, which had no water until recently, regarded this small town in the northwestern foothills of the Kopet-Dags as a supplier of Turkmenia's rarest wealth—fresh water.

2

While the underground streams may serve as an example of how thrifty nature can be, there is something in the Kopet-Dags to show that it can also be extravagantly wasteful. This something is the so-called torrent.

East of Kazandjik, along the northern slopes of the Kopet-Dags, the traveller will come across wide, flat gullies resembling dried river-beds. These gullies were made in the soil by violent streams of water during heavy downpours of rain which in these parts sometimes take the shape of elemental calamities. If the rain lasts over a protracted period, the rain-water, carrying sand, clay and stones down the slopes, may bring disaster to the valley. The people of the valley remember the names of *auls* that were completely washed away by these torrents. The water may surge down from the stony ridges for only an hour or two, but that is often enough for everything in the valley to be either destroyed or swept away. Trees, livestock, dwellings, railway sleepers, rails and, sometimes, even people, in fact, everything that stands in the path of these torrents is swept away into the desert.

In the course of the year, the torrents bring so much water into the desert that were it retained and used for irrigation, it would be enough to double the crop area in the Kopet-Dag foothills. If man learned to catch these torrents in reservoirs there would be many more vineyards, orchards and mulberry plantations. There would be more melons and more grain, which is brought at great cost from distant Siberia, the Northern Caucasus and the Volga area. There would be more cotton, which is not occupying its rightful place in the Kopet-Dag foothills because the soil cannot be provided with a regular supply of water. If a system of special barriers and reservoirs were built to retain these torrents of water, the towns and *auls* in the Kopet-Dag foothills would have more electricity, for, harnessed, the torrents would drive hydroturbines as easily as they wash away crops and destroy houses.

Torrential rainfall occurs all over the Kopet-Dag slopes and there is a reason for that.

The Kopet-Dags (more rightly called the Turkmen-Khorasan Range, because they form only a section of that mountain system) are a long chain of mountains. Their southern part is in Iran, where they slope gradually towards ranges running parallel with them and separated by numerous, broad river valleys.

On the Turkmenian side, the Kopet-Dags slope steeply, forming practically no parallel ranges or valleys.

Rain clouds driven by the wind from the Aral Sea, the Caspian, or more distant basins, are held up by the Kopet-Dags and lose all their moisture over the main ridges. The rain-water is not detained by long valleys or mountain streams of which there are only a few in this area, but rushes down in great torrents. The sparse vegetation on the northern slopes is not enough to detain them.

In Turkmenia, there is only a comparatively small region where the Kopet-Dag Range is not a steep wall. This region lies south of the railway between Kazandjik and Kizyl-Arvat and is called Kara-Kala District or Sumbar Valley (after the River Sumbar, on whose banks stands the small town of Kara-Kala, a district centre). It is sometimes called Atrek, because the Sumbar is a tributary of the Atrek. Most frequently, however, it is not given a geographical name at all, but simply called "our subtropics" or the "dry subtropics of Turkmenia."

3

Two roads lead deep into these subtropics. One is from the north, from the railway station of Kizyl-Arvat, and the other from the southwest, from the fishing town of Gasan-Kuli. However, since Gasan-Kuli is itself far from the republic's trunk communication lines, the usual route to the Turkmen subtropics is along the highway from Kizyl-Arvat to Kizyl-Atrek, which is regarded as the chief town of the Turkmen subtropical zone. The highway passes through Kara-Kala and along the River Sumbar.

For a good two-thirds of the way between Kizyl-Arvat and Kizyl-Atrek, the highway runs across foothills and mountains. Only after it passes the Sumbar Valley does it lead into a broad, open steppe, where in a deep canyon flows the muddy Atrek.

Beyond Kizyl-Arvat, the highway is hedged in by mountains. They are bare and low and were it not for the little bubbling mountain stream flowing northward near the highway, they would have reminded the traveller of the desolate Krasnovodsk Plateau.

At first the highway runs due south. After a half-hour's drive by car, the traveller crosses a ridge of stony mountains that can be seen from Kizyl-Arvat; then, gradually turning eastward, the high-

way begins to descend into a valley whose southern end is walled in, as it were, by a row of mountains. Though somewhat higher than the first ridge, these mountains are just as desolate and bare. Immediately beyond them is a third ridge, which is much higher than the first two (the elevation is more than 3,280 feet). These mountains fill the whole southern horizon like a cloud. Here the highway begins to twist and turn.

The treble wall of mountains separating the valley of the Sumbar and of its tributary, the Chandir, from the Kara Kum Desert, protects these valleys against cold winds, with the result that Kara-Kala District has a subtropical climate—the winters are almost frostless.

The panorama that opens before the traveller as the car enters the valley of the Sumbar makes up for the barrenness of the landscape in the stretch from Kizyl-Arvat. The right and left banks of the river, as far as the eye can see, are covered with blossoming vegetation and the air is filled with its fragrance. The overgrowth is especially thick in the side ravines. Formed by small tributaries of the Sumbar and densely carpeted with shrubs, creepers, grasses, and trees spangled with flowers, fruit or nuts and clothed with leaves of different hues and shapes, these ravines themselves resemble multi-coloured streams. Almost every kind of fruit-tree known in Mari, Samarkand, Leninabad, Ferghana and other fruit-cultivating regions of Central Asia, grows wildly and bears fruit in these ravines.

In Kara-Kala, the administrative and economic centre of the Sumbar Valley, the people are trying to domesticate the different kinds of plants that are growing untended. The Kara-Kala Centre of the U.S.S.R. Plant-Breeding Institute has made a comprehensive study of subtropical flora and has marked out the species that could be most profitably cultivated locally. The pomegranate is now one of the staple fruits in the Kara-Kala collective farms. There is no reason why the fig and the almond should not be grown on a broader scale. The nourishing and tasty Japanese persimmon, which successfully holds its own against the famous apples, pears and apricots of the Turkmen orchards, grows well in this region. Experiments with the Crimean olive have shown that this tree bears

more fruit here than in its native Crimea. Sumbar grapes already have a following not only in Turkmenia. When a bottle of wine bears the *Ai-Dere* label, it means that the wine has been made from grapes grown in the Ai-Dere Ravine, one of the most picturesque in the Sumbar Valley.

Efforts are being made to introduce rubber-bearing plants.

Turkmenia started cultivating subtropical plants a little more than 20 years ago. Prior to the October Revolution people categorically rejected the very idea of growing them in that area, and even for some years after Soviet power was established it was held that subtropical cultures were the exclusive province of the Transcaucasus. The reasoning was that the air in Turkmenia was too dry and the winters excessively cold.

With certain reservations, subtropical plants can be grown almost throughout the length and breadth of Turkmenia. The exceptions are its northernmost regions—Tashauz and the northern coast of Kara-Bogaz-Gol—where the winters are long and severe. In the other regions, all that is necessary to make the plants thrive is to provide them with proper shelter during the period of frost. Places sheltered from frost by mountain barriers are, naturally, most suited for subtropical plants. Among them are the valleys of the Sumbar, Chandir and Atrek, where frosts are rare visitors.

The short period of cold in these places is even essential for the normal growth of subtropical flora. After a protracted summer, plants such as the pomegranate, fig, and date-palm need a period of relative coolness so that without losing their leaves they can fall into a sort of sleep in preparation for the next flowering season. Many subtropical plants cannot live or bear fruit where the temperature does not fall. The date-palm, for instance, does not grow in the tropics, but it can be successfully cultivated in southwestern Turkmenia, which is shielded by mountains.

At present, date-palms are grown only along the middle reaches of the Atrek, in the vicinity of Kizyl-Atrek. When the traveller finally reaches the banks of the Atrek after a drive across the valley of the Sumbar, the picture before him at a place where the river makes a loop is reminiscent of the African landscape. He will see a thicket of broad-leaved palms with a caravan approaching it from

the desert. No, this is not a corner of the exotic tropics in some foreign land but one of the subtropical plantations of Soviet Turkmenia.

Thanks to the climate, the date-palm can become as common along the Atrek as the mulberry, thuja or acacia is in the towns and settlements of the plain that lies in the shadow of the Kopet-Dags.

4

When the traveller leaves the sunny valley of the Sumbar in order to catch the Ashkhabad-bound train at Kizyl-Arvat, he carries away with him a memory not only of the rich vegetation or the sweet fruit.

Makhtumkuli, the best-known Turkmen poet of the past, once took refuge in this beautiful spot.

Readings of Turkmen literature were held in Moscow in September, 1945, the first peaceful autumn after the Second World War. That was the first time the general reader in the Soviet Union was given a broad insight into the works of the writers of the distant southern republic. Until then few works by Turkmen authors were translated into Russian and only two or three volumes of poems by 18th- and 19th-century poets (Makhtumkuli, Kemine and Mollah-Nepes) were published before the war. These literary evenings took the Russian reader into the world of Soviet Turkmen poetry. The people of Moscow were impressed by the patriotic, courageous, simple poems of Ata-Salikh, the folk bard; the stirring, lyrical lines about the heroism of Soviet soldiers by D. Khaldurda; the melodious verse dedicated to Ashkhabad by Kara Seitliyev; the poems about Soviet women by the poetess Taushan Esenova.

Speaking on Turkmen poetry in Moscow, Berdi Kerbabayev, one of the deans of Soviet Turkmen writers, described how much was done by Makhtumkuli to advance Turkmen literature.

"There was an obstacle in the past," he said, "that could have delayed the development of our literature for a long time. It was the artificial literary language that placed literature almost beyond the reach of the creative powers of the people. The dam put up by this artificial language was breached by our great Makhtumkuli. He boldly introduced folk language and folk forms of versification into

literature, which he indissolubly linked with the life and thoughts of the people. He lived, thought and suffered with the people.

*Makhtumkuli makes his own*
*The sufferings of his native home....*

declares one of his poems. The poet proved this in all his works and in the way he lived. He was a poet, citizen and soldier. The *mullahs* and *ishans* proclaimed him a heretic and madman and his works were forbidden in the schools. But the people sacredly preserved his poems in their minds."

This appraisal of Makhtumkuli's poetry is quite fair, although his literary heritage is not uniform as far as its artistic and ideological merits are concerned. Berdi Kerbabayev was right when he said that Makhtumkuli was concerned most of all with the interests and happiness of his people and that he abhorred wickedness, injustice and violence.

Makhtumkuli was born and spent most of his life in southwestern Turkmenia. He came from the Goklen tribe, whose lands adjoin the region of Kara-Kala.

Students of literature believe that Makhtumkuli was born in the middle of the 18th century. Those were difficult years for the Turkmen people. Nadir-Shah, the ruler of Iran, set out to restore the ancient empire of Genghiz Khan and Tamerlane and began wars of conquest against the neighbouring peoples. The Turkmen tribes suffered enormous losses in the struggle against Nadir-Shah. They fought courageously but intertribal strife and discord undermined their strength. From his childhood Makhtumkuli was a witness of the great sufferings of his people, and that left its imprint on all his later work.

Legend tells us that Makhtumkuli began to compose verses in early youth. His models were not only the songs the people sang, but also literary poetry; by the standards of those days his father, Davlet-Mammed Azadi, was a well-known poet.

Makhtumkuli studied at the higher Moslem school in Khiva and when he returned to his homeland he taught children in the *auls*. He devoted part of his time to poetry and handicrafts. Makhtumkuli travelled extensively: he visited Khiva, Bukhara, Iran, the Caucasus,

and even Astrakhan. In the course of his life he saw a lot and found much food for thought. He saw the dissensions that were rending the Turkmen tribes. He saw the illiteracy and backwardness of the *auls*. He realized that in order to carry on the struggle against their enemies the Turkmen people needed unity most of all. However, he probably did not understand that the chief enemies of national unity were the beys and headmen who could retain their authority only when the tribes were dismembered and weak. Makhtumkuli's verses castigated the evils that held the people in a vice and were regarded as the summit of Turkmen poetry. They are brilliantly written and vividly describe life in those days.

Loving his people as he did, Makhtumkuli's bitterness over the internecine strife was redoubled by the fact that he did not see any real possibility of finding a quick way out of that national calamity. He eagerly looked forward to the day when evil would be flung out of the life of the Turkmen people. But the poet did not know how that could be achieved. He hoped that people could be persuaded to realize that virtue, integrity and justice were stronger than wickedness, falsehood and injustice.

Legend has it that Makhtumkuli died at the close of the 18th century of "constant grief at the unceasing bloody wars that were destroying the people." That legend most strikingly reveals the respect that attaches to the poet's name in the minds of the Turkmen people.

## Chapter II

### 1

Until very recently there was hardly any vegetation in the towns along the Turkmen seaboard. That is why in Krasnovodsk, Nebit-Dag, and Kum-Dag every sapling that strikes root and every new, tree-bordered walk bring such joy to the people. But in the long-settled Central Asian oases, where usually there are more trees than houses, the situation is quite different. Growing along the pavements in several rows, acacias, mulberries, plane-trees, and poplars form the main feature of the landscape there and give many Central Asian towns the appearance of parks. Some towns have

such a thick carpet of verdure that they seem not only to be hidden in it but also to merge with it. Ferghana in Uzbekistan and Bairam-Ali in Turkmenistan may be cited as examples. In many of the streets the houses are all but buried amidst the abundant, luxuriant vegetation. The impression is intensified by the fact that the houses are built of brick made from the local light-grey silt, which, whether roasted in kilns or simply dried in the sun, retains the colour of the soil.

The colour scheme of the Central Asian landscape is the same for hundreds of miles. The vast greyish-yellow steppe looks white in the bright sun. Mountains tower mostly along the southern horizon. Here and there are little islands of greenery or small thickets. From afar the trees look quite dark, but as the traveller approaches them they take on their normal green colour and the eye begins to distinguish the roof-tops peeping through the foliage. Unlike Central Russia or Siberia, where a forest always implies an absence of people and seclusion from the bustle and hustle of towns, Central Asia is a land where trees and human habitations cannot be divorced. Were it not for the shade afforded by trees, it would have been extremely difficult to live, work, or even move about the streets, which lie exposed to the sun for 200 days in the year and whose pavements sometimes become heated to a temperature of over 122° F.

Settlements and towns look bare only where the supply of fresh water is very low; the Caspian seaboard, for example. But even there trees are already taking their rightful place in the streets. The day is not far off when Krasnovodsk and Nebit-Dag will resemble parks much like Chardjou or Bairam-Ali. At present, however, along the railway from the Caspian the first town with any real verdure is Kizyl-Arvat, a district centre of Ashkhabad Region.

Kizyl-Arvat, a town of railwaymen, is the first important inhabited point in the inhabited strip along the Kopet-Dag foothills.

In this typical, small Central Asian town, with its *ariks* and rows of shady trees, most of the people are employed either in the engine repair works or in the other enterprises serving the railway.

The history of Kizyl-Arvat, which sprang up in the years the Central Asian Railway was built, is tied up with the history of the railway.

When the tsarist government decided to build a railway from the shores of the Caspian in the direction of the Akhal-Tekke Oasis, Kizyl-Arvat was marked off as the terminal.

In 1885, the railway was extended to Ashkhabad. Two years later, a bridge was thrown across the Amu-Darya and the Central Asian Railway, entering the territory of Bukhara, slowly advanced towards Samarkand. A strategic branch line that was at first of purely local importance, it gradually grew into one of the greatest transport projects of the 19th century.

The history of the Central Asian Railway still remains to be written. The line was built in what for those days was an unprecedentedly short period and may be considered as one of the major achievements of pre-revolutionary Russian engineering.

The region through which the railway had to be laid was absolutely devoid of water and, given a storm, the sand, which always threatened to shift whenever there was a wind, seemed capable of burying not only the line but whole trains together with the passengers in them. The line had to pass through one of the hottest areas in the world. Everything from sleepers and nails to fresh water for the workers and fodder for the horses had to be brought from the Caucasus or Central Russia.

Ships brought building materials and workers from Russia. One of the first measures taken by the builders was to set up a water distillery with a daily capacity of 4,000 pails. Fresh water was found only in two points along the planned route—at Kazandjik and Kizyl-Arvat—and the working day always began with deliveries of water from these points to all the construction sites.

Foreign observers predicted that nothing would come of the Russian undertaking. They were quite certain that the sand would bury the daring dreams of the Russian engineers together with the very idea of building a railway to the Kopet-Dag foothills. Indeed, at times the engineers were desperate. The sand-storms very nearly brought them to the end of their tether. Quite often all the fruits of their labour would be buried overnight under a thick layer of sand. At other times quite the reverse happened: after a sand-storm they would find the soil between the sleepers blown away and the rails

hanging in the air. In an especially difficult sector, the builders even toyed with the idea of digging a tunnel.

In the end, the doggedness and ingenuity of the engineers won the day. Esparto-grass was imported from Africa to fix the sands. This was later replaced by local tamarisk and saksaul. The sleepers were laid on clay to prevent the soil from scattering. That averted the main danger, and the line became as rigid as though it were not in a desert but in the black-soil region of Voronezh or Orel.

In those years, little was known about the desert. Nobody could tell for certain how quickly or under what conditions the *barkhans* shifted or how the sands should be fixed. People even doubted if they could be fixed at all! Everything that the builders did to safeguard the railway was based on their own discoveries. Much later, when scientists began a systematic study of the Kara Kum and, particularly, when the Repetek Scientific Centre was established, great attention was paid to the experience of the men who built the Transcaspian railway.

It was recognized that one of the most effective means of protecting the line from any loosening of the soil and from sand-drifts was to fix the sands with drought-hardy plants. Such plants were found in places, where, held together by roots, the sand was stationary. Besides saksaul and tamarisk, these plants include aristidas, salsola, kandym, desert acacias and other desert flora—shrub-like overgrowth that cover large areas of the Kara Kum. Today, they are being planted along the line by a special department of the Ashkhabad Railway.

The railway has been in existence for more than 70 years, and in all that time not a year has passed without more shrubs being planted along the line. The result of this unceasing work, which was continued on an unprecedented scale in Soviet years, was that sand-drifts never caused a day's break in the service.

The following shows how much work has been done to protect the railway from sand-storms. More than two million sand-resisting shrubs of various kinds were planted along the railway in 1949 alone. The belt of greenery along the line is now almost 350 miles long.

The tsarist government built the Central Asian Railway with the

purpose of safeguarding Russia's distant Asian frontier against encroachment and sudden attack. That purpose was achieved.

On the other hand, the railway gave rise to a lot of talk among the people inhabiting the sandy wastes. For a country situated far from the centres of modern civilization, the whistle of the steam engine sounded like the herald of forces other than those which had been supreme in the desert for untold centuries and regarded by the nomads as omnipotent and indestructible. The first steam engine to approach the Kopet-Dag Mountains brought to this region, where the atmosphere of the Middle Ages had been vegetating too long, the spirit of the 19th century, a century of technical progress and industrial transformations. That could not help but influence the minds of the people in the Turkmen *auls.*

Half a century after Turkmenia became part of Russia, the mighty explosion of the Great October Socialist Revolution brought real and lasting freedom to all the peoples of tsarist Russia. The Revolution crushed the rule of the Russian officials, the Bukhara and Khiva *rais,* the Turkmen serdars and beys, and the khans, while everything the tsarist government managed to build in Turkmenia with the sweat of Russian workers and the Turkmen population was handed over to the people—the real masters of all the orchards, towns, rivers and mountains.

The people became the owners of the railway on which so much persistence, skill and labour was spent.

For the first few years after the establishment of Soviet power, the Central Asian Railway remained much in the same state as when it was built in the 19th century. The old mode of life was breaking up everywhere and people began to think and work in a new way, but hardly anything changed in the equipment of the railway. The towns and *auls* along the line were being transformed and other cargoes rolled along the rails, but the technical level of the railway itself remained stationary. During the five-year plans, however, radical changes took place on the railway as well.

Economical diesel locomotives replaced steam engines that consumed enormous amounts of fuel and water.

The Ashkhabad Railway was the first in the Soviet Union to make extensive use of diesel locomotives.

2

Kizyl-Arvat was an important Transcaspian working-class centre already before the Revolution. In 1917, there were about 2,000 workers at the Kizyl-Arvat railway workshops. In 1905, it had the largest share of revolutionary undertakings in the Transcaspian, while in 1918 it was the scene of a tragic episode that was linked with the outbreak of Civil War in that area.

On June 17, 1918, an uprising was staged in Ashkhabad by Social-Revolutionaries led by Count Dorrer and the barrister Dokhov. They broke up a meeting organized by the Soviet authorities in the city park and occupied the City Soviet. A few days later, Frolov, an army officer sent by the Central Committee of the Turkestan Communist Party to restore order in the Transcaspian, marched into the city at the head of a detachment of Red Guards.

Frolov suppressed the counter-revolutionary uprising by energetic and resolute measures. But just then news was brought that the Social-Revolutionaries were preparing an uprising in Kizyl-Arvat, and Frolov took his detachment to that town with all possible speed.

After his departure, the Social-Revolutionaries again stirred up trouble in Ashkhabad and sent a band of several hundred Whiteguards in pursuit of the Red Guard detachment.

Frolov and the Bolsheviks of Kizyl-Arvat were preparing an election meeting in the town when the Social-Revolutionaries and the *basmachis* approached its outskirts. The Whiteguards stole up to the town gates and opened fire. The attack was unexpected. The Red Guards were quartered in small groups in various parts of the town. The Kizyl-Arvat Social-Revolutionaries supported the attackers and captured the water tower, the tallest building in the town.

Frolov was surrounded near the Roman-Catholic church, which was built by settlers from West Russia. The Red Guards sought to barricade themselves behind the thick walls of the church, but could not force the locked gates. Frolov was killed in the skirmish while the Red Guards with him were taken prisoner and shot.

A reign of Whiteguard terror began. All the Communists in Kizyl-Arvat were shot. A Social-Revolutionary unit set out along the railway, committing outrages and shooting Soviet officials at all the stations between Kizyl-Arvat and Krasnovodsk. The same day (that happened on July 12, 1918) a new "central" authority was proclaimed in Ashkhabad. To camouflage its true face, it called itself the "Railway Strike Committee."

After receiving assurances that Frolov was dead, members of the Ashkhabad Social-Revolutionary Committee murdered the leading Soviet officials in the city—Zhitnikov, Telliya, Molibozhko, Batmanov and others.

As soon as the workers and the Army units that remained loyal to the Soviet power began a counter-offensive from Chardjou, the Social-Revolutionaries discarded their mask of "defenders of the Revolution" and openly appealed to foreign imperialist powers for assistance.

The Whiteguard Funtikov, who headed the Social-Revolutionary Government, wrote in his diary:

"... it was especially due to the Sepoys that our retreat from Merv was not a rout. It was only thanks to the British that we held the further pressure of the enemy in check...."

Turkmenia was the arena of a fierce Civil War for one and a half years. The interventionists armed the *basmachi* gangs, and, together with them, burnt and ravaged Turkmenian *auls* and towns, and executed great numbers of men and women whose only crime was that they loved their people and their Soviet Motherland.

In the early hours of October 15, 1918, Tedzhen was razed by *basmachis* headed by Eziz-Khan. The bandits destroyed the town and put the entire male population to death; some of the women were also killed—the rest were led away into captivity. I had an opportunity of visiting Tedzhen during the Civil War. Not even a dozen buildings were left intact. No earthquake could have inflicted so much damage and suffering on Turkmenia as did the interventionists and the counter-revolutionary *basmachi* gangs.

The triumph of the invaders was short-lived. Pressed by the Red Army, the interventionists, Social-Revolutionaries and *basmachis* began to retreat westwards. Ashkhabad was liberated in June, 1919,

and in February, 1920, the invaders were compelled to evacuate Krasnovodsk.

The victorious banner of the Soviets was for ever unfurled over the sun-flooded spaces of Turkmenia.

3

Here, at last, is the famous Akhal-Tekke Oasis, which has been glorified by poets and described by many travellers and historians. Today, this name is usually applied to the foothills of the Kopet-Dags. The Akhal-Tekke Oasis is the wine, fruit, and vegetable centre of Turkmenia. In it are concentrated almost all of the republic's food enterprises, the leading light industries, the glass industry, and 95 per cent of all its cultural and research establishments. Ashkhabad, the capital and biggest city of the Turkmen S.S.R., is situated here.

This belt of ancient settled lands and cultivated fields is not broad. Its natural boundary in the north is the Kara Kum Desert, while in the south it is bordered by a range of mountains. The populated zone is rarely over seven miles wide; in some places it narrows down to two miles. Here and there it breaks off, letting the sands and the flat, bare *takyrs* cut a passage clear to the mountain sides.

The railway runs along this thin chain of cultivated land, hugging its northern border.

The Akhal-Tekke Oasis is unlike the other inhabited places in Turkmenia. The chief oases in the republic—the Murghab, Tashauz and Chardjou oases—are densely populated regions with the desert surrounding them on all sides. Each is like a verdant island amid the barren sea of sand.

But in the Akhal-Tekke Oasis the picture is quite different. There is nothing about it to suggest an island. The desert is to be seen only in the north, for in the south the oasis is protected by mountains, which most definitely do not embody desolation. They furnish water and are, therefore, the source of life for the fields and orchards in the foothills. True, the northern slopes of the Kopet-Dags cannot boast of much water: there is not a single important river. Yet the mountains have something like 70 small rivers and

streams—the Kizyl-Arvat, Kesha, Ashkhabadka, Chulinka, Arbaz, Baba-Durmaz, Firyuzinka and others—as well as more than a hundred *kyarizes* that bring water to the collective-farm fields of Ashkhabad Region.

Droves of collective-farm horses graze in the hilly pastures. Some of the farms grow barley and wheat. The Kopet-Dag slopes abound in splendid building material such as pure quartz sand, various clays, gypsum and limestone, the deposits extending from the vicinity of Kizyl-Arvat to Ashkhabad, over a distance of 120 miles.

The settlements and fields alternate with stretches of sand or *takyrs*. From the air these settlements and fields look like big and small green beads threaded on the string formed by the railway. Their size depends on how much land the population has managed to wrest from the desert with the help of water flowing down the mountains in streams and *kyarizes*.

4

In the Kopet-Dag foothills there is a huge area of some 3,700,000 acres that is suitable for development. Of this area, only 370,000 acres, or a tenth, have a network of *ariks*. The amount of water yielded by the Kopet-Dags is enough to irrigate no more than 89,000 acres or 2.5 per cent of the arable land.

That explains why cotton-growing was not encouraged even where *ariks* irrigate the soil. The staple agricultural products are grapes, fruits, melons and grain (barley and wheat), which require less irrigation than cotton.

Wheat is mostly sown on elevated ground where natural precipitation is highest.

Crops that can do without artificial watering, requiring no more than the inconsiderable moisture brought by rain and mist, are called *bogars* throughout Central Asia. Mist and rain are much more frequent on the elevated ground near the Kopet-Dag Mountains than in the lowlands. In general, precipitation in the Kopet-Dag foothills is almost twice as high as in West Turkmenistan. In Ashkhabad the mean annual precipitation is 86.6-90.6 inches, while in Krasnovodsk it is a bare 39-47 inches.

The higher a field is situated in the mountains, the more moisture it gets. An elevation of 1,300-1,900 feet is sufficient for *bogars* to yield an almost guaranteed harvest. The best crop, however, is grown at an elevation of 2,600-3,200 feet, where, besides the heavier precipitation, the main advantage is that the lower temperature prevents the shoots from withering.

For approximately every 650 feet of elevation, the mean temperature of the air falls by one degree. Consequently, at 2,600 feet the temperature is four or five degrees lower than at the foot of the mountains.

In the Kopet-Dags, the cultivation of *bogars* is impeded by the steepness of the slopes. The best places are in the uplands where big, flat hills or plateaus descend gently towards the plain. Most of the hills facing the Kara Kum Desert are steep and for that reason the fields under *bogars*, like the irrigated land, do not form a single massif. They are distributed in plots and patches about the highland steppe, which occupies the greater part of the Kopet-Dag foothills.

Nevertheless, at least half the cultivated land in the Kopet-Dag zone is occupied by *bogars*.

The steppes in the lowlands and plateaus are a natural grazing ground for horses.

Akhal has long been famous for its horses. Admirers of the Akhal-Tekke breed maintain that nowhere else in the world have natural conditions and human care combined to evolve such a beautiful, indefatigable, fast, clever and noble animal. This evaluation of the Akhal-Tekke horse is, of course, somewhat exaggerated, for the Orel, Donchak, and Budyonny breeds are not only the equals of the Turkmen horses but in many ways even superior to them. But the enthusiasm of the Akhal-Tekke admirers is quite understandable. The merits of the famous Turkmen horse become self-evident when it is put through its paces by an experienced rider.

The local Yamut horse is likewise a close rival of the Akhal-Tekke breed.

The qualities of the Akhal-Tekke and Yamut horses as well as the skill of the collective-farm horse-breeders of Turkmenia were put to a stiff test in the summer of 1935 during the famous Ashkhabad-Moscow race.

They passed the test with flying colours. The Akhal-Tekke and Yamut horses surmounted all the hardships on that long and difficult route. When they floundered in quicksands or salt-marshes, their riders helped them by felling saksaul-trees and building paths. The race was a triumph of the Turkmen collective-farm horse-breeders.

In 84 days, the Turkmen riders covered 2,672 miles. The long distance was not the only obstacle. Several climatic zones had to be crossed, the route lying through deserts, the vast Ustyurt Steppe, mountains, forests and marshes—along the west coast of the Aral Sea to Moscow by way of Aktyubinsk, Kuibyshev and Ryazan. In Central Asia the summer was unusually hot that year, but on the shores of the Aral Sea and in the ravines of the Mugojari Mountains the winds were bitterly cold. Thunderstorms and heavy rain gave the riders no peace in the Volga area, while in Moscow Region they were met by an icy drizzle. The going was hard for the horses, which were unaccustomed to muddy ground. On August 23, 1935, the people of Moscow turned out to greet the Turkmen riders.

The republic's best stud-farms are in Kizyl-Arvat, Geok-Tepe and Ashkhabad districts. Every autumn they enter their animals for the races in Kizyl-Arvat, which attract experts from all over Turkmenia.

In addition to developing the more or less high slopes of the mountains, the people of the Akhal-Tekke Oasis are pressing the sands of the Kara Kum into their service. They regard the desert lying to the north as a pastureland for their livestock. After the winter and spring rains, lush grass covers the desert for a short period, which coincides with lambing-time. This vegetation withers by the time the lambs grow stronger, leaving only *ilak* (a short, dry, sparsely growing grass), which, in spite of its unpretentious appearance, is quite suitable as fodder.

The Akhal-Tekke sheep farms graze their flocks in the desert the year round, competing with the stud-farms in the ability to find food for their animals in places which are seemingly barren.

Thus, in the Turkmen oases, agriculture is everywhere combined with desert livestock-breeding.

5

After Kizyl-Arvat, Bami is the first more or less big inhabited point on the railway to Ashkhabad.

In the history of Turkmenia, this small settlement is known as the site initially chosen for the chief town of the Transcaspian Region. A few houses were already built and the foundations for the fort laid, when the officer commanding the Russian garrison decided that not enough water was coming down from the mountains. Hydrologists were sent along the entire Kopet-Dag Range to find a more suitable place. Their choice fell on the *aul* of Ashkhabad, situated to the southeast of Bami. Ashkhabad began to expand, while Bami remained a small settlement on the railway. At present, it is noted only for its vineyards, which, incidentally, are not in the settlement itself but in the *aul* of Beurma, some eight miles away.

A little more than an hour after pulling out of Bami, the train stops at a little station building with the name Archman written in Turkmenian and Russian. It would be worth the traveller's while to get off the train here in spite of the fact that the small station settlement looks uninteresting. The settlement is only a place where the traveller changes from a train to a car, which after a half-hour's drive along a bumpy and dusty road brings him to the famous Archman medicinal spring.

This sulphur-sulphate-lime spring has formed a little lake; the air over it smells strongly of rotten eggs. The water has a higher hydrogen sulphide content than the famous Sabaneyev Spring in Pyatigorsk (the Caucasus). Properly speaking, there is no reason why Archman should be less famous than Pyatigorsk. The nitrogen content of the water of the Archman spring is much the same as of the water at Tskhaltubo (the Caucasus). For many centuries the local population has been using the warm Archman waters as medicine against skin, nervous, bone, gastric and other diseases.

Archman became a spa in 1923. It is very popular with the people of Turkmenia, and, since the war, has been attracting people from other republics.

The attending physicians have noted the beneficial effect on people not only of the water from the spring but also of the air, whose curative powers are truly astonishing.

Undoubtedly, there is a great future in store for the spa because of its proximity to the railway, the medicinal properties of the spring, and the healthy climate. About 700 people visit it every year but that figure is not the limit, especially if we bear in mind that in the picturesque uplands close by lies the settlement of Nukhur, which has been fashioned as a place of rest by nature itself.

Nukhur nestles against the Kopet-Dags about eight miles south of the passes through the first ridge. The hills around the settlement are sufficiently high (2,700 feet above sea level) to exclude the necessity for artificial irrigation. Nukhur has an abundance of greenery, flowers, fruit and water. There are cool springs, and the vineyards yield rich harvests of superior grapes.

The history of the settlement is interesting. In the remote past, its natural wealth and the closeness of the mountain passes, which afforded an avenue of escape in the event of danger, made it a kind of secret fortress, whose shelter was sought by fugitive captives and slaves, people who broke the laws of the Sharia, and insubordinate warriors—in short, by everybody who wanted a refuge from the clan or *aul* authorities, the khans' hangmen or the ruthless church dignitaries.

It is said that Nukhur was founded by Alexander the Great, who left a detachment of mutinous warriors there during his wars in Central Asia. In later centuries, it attracted among others Tekke and Goklen *djigits* (mounted warriors) who violated tribal or clan discipline, Uzbeks, and nomads from the southern slopes of the Kopet-Dags.

6

One of the bigger "green beads" on the railway across the Kopet-Dag foothills is Bakharden, a district centre of Ashkhabad Region. Bakharden is on the Arbaz, the most turbulent of the Kopet-Dag streams.

The local collective farms were among the first to start cultivating fine-fibre cotton in the Kopet-Dag strip. They proved that in spite

of its being only a stream, the Arbaz brings down sufficient water to irrigate cotton plantations. Their experience was widely utilized throughout the neighbourhood and that changed the economy of the collective farms in Ashkhabad Region.

One of nature's rare sights is the underground lake in Bakharden District. Located near the mountains thirteen miles from the railway, this lake is called Durun or Bakharden, and is one of the biggest of its kind in the Soviet Union.

The road from Bakharden Station to the lake is quite bare. In the summer, everything around is covered with a fine, hot, white dust, which deprives even the multi-coloured Kopet-Dags of their lustre. In Turkmenia visibility is generally poor during the summer months. Raised by the wind, the dust hangs in the air, giving it a hazy, blue colour. It is so light that on a calm day it hangs in the air for hours, blurring the contours and colours of distant objects. The famous fata morgana or the illusive appearance of sheets of water in the desert depends largely on how much the air is saturated with fine dust.

To return to the lake. It is reached through a cave in a fairly steep, stony slope. A narrow, 33-foot-long entrance leads down to a flat platform with chalk and limestone walls. In one of the walls is a corridor which descends gradually over a length of something like 425 to 500 feet. As one approaches the lake the air grows warmer and closer. Overhead one hears the swishing of frightened bats, of which there are countless numbers. The darkness is so intense that the lake cannot be seen without a lantern or a torch. The water is quite motionless and looks as heavy as lead. More than 35 feet deep, the lake measures approximately 32,000 square feet. A ride into the darkness in a boat will show that amid the chalk walls the plash of an oar does not have the same sound as on a river. The hydrogen sulphide vapours grow denser when the water is disturbed. The splashing of the waves, the grating of the rowlocks, and the light from the torches awaken the doves that, like the bats, have made Durun Cave their home. Heavy drops begin to fall, giving the impression of rain. If, by chance, the torch or lantern is extinguished, one will, for a moment, experience an unpleasant sensation of being shut off for ever from everything that was left at the mouth of the

cave—the sunlight, the wavy ridge of lilac mountains, the broad steppe, and the smell of dust and wormwood.

Though the lake was regarded for ages as a source of medicinal waters, the people thought there was a curse on it. When Makhtumkuli, Zeleli, Kemine, or some other ancient Turkmen poet wrote of the nether world, he probably had before his mind's eye a picture of this smooth, golden, fume-laden stretch of underground water with the countless bats hurtling about in the inky darkness.

Durun Cave has not been thoroughly investigated. Yet the very fact that there is such a huge lake in the heart of the Kopet-Dag Mountains when the fields on their foothills are burning with thirst is very interesting and should be studied.

## Chapter III

1

The fame of the Bakharden carpet-weavers has always been widespread in Turkmenia.

It is a fame that belongs not only to Bakharden, but to the whole Turkmen people. The Tekke carpet is a product of national art.

The fame of the Bakharden carpets is shared by Yamut rugs, made in Gasan-Kuli and Chikishlyar, by the rugs of Kazandjik, Kizyl-Arvat and Ashkhabad, and by the finely-patterned Pendin rugs woven by the women of Takhta-Bazar.

The need for carpets was dictated by the nomad way of life, in which the *kibitka* served as a dwelling. In the *kibitkas* the carpets were used as spreads and bedding, as protection against cold, and as doors. The nomads slept on them during the overnight stops on their journeys across the desert. Along the Volga or, say, the Dnieper, people could always go to sleep on the grass or on new-mown hay, but the desert inhabitant needed something he could spread on the sand.

The Turkmen carpet is more than a piece of applied art. In order to serve as a spread on the ground or on a *supe* (the Turkmen clay couch), a carpet need not have the beautiful range of reddish hues that fill the velvety Tekke product. In order to serve as a door in the

clay or felt dwelling of the *dekhan* or *chaban,* the centre of the carpet need not have such a perfectly symmetrical pattern of somewhat angular, almost oval-shaped rings (so-called *guls*), each of which is divided into dark and bright tones. In the best Turkmen carpets, the dark-red and bright yellow tones blend so naturally and gently that the iridescence is like the play of lines and colours in nature or in exquisite works of art.

The Moslem religion forbids portraying the human face in drawings or in sculptures. That is why Moslem countries did not have a developed art of portrait-painting. The peoples converted to the Islam faith by the Arab conquerors substituted realistic painting by magnificently coloured ornamentation, which usually decorated mosques, *medreses* (schools), and other public buildings. The Turkmen people created the carpet.

The carpet is the handiwork of the Turkmen women. When a girl prepared for marriage, she wove a carpet, expressing in the design and colours the emotions filling her heart and the things she dared not or could not put into words. It is not fortuitous therefore that through the ages the people have been drawing a comparison between carpet-weaving and singing.

The merits of a carpet are determined not only by the pattern and the colours. As every other work of art, its value depends on the way the design is executed. The pile has to be perfectly level, and the weaver must know how to cut it with big shears. The "face" of the carpet must be compact. In other words, the threads forming the pile must be pressed so closely together as to leave no space between them, as though the velvety, woolly surface were a special form of life that sprang up as an independent phenomenon of nature. The quality of a carpet's texture is determined by the number of knots to every square inch. The weavers compete among themselves not only in the ability to create beautiful designs but also in the skill at tying knots with the dyed woollen thread.

It is difficult to tell when the first Turkmen carpet was born. Ibn Said, a geographer who lived in the 12th century, wrote respectfully of the Turkmen carpet-weavers. Marco Polo, who travelled across Turkmenia in the 13th century, spoke of the Turkmen carpet as of a work of art.

In Turkmenia, the development of carpet-weaving was due largely to the discovery of beautiful, natural fast dyes in various parts of the land, and in neighbouring countries that carried on a permanent trade with the Turkmen tribes.

One of these natural dyes is derived from madder; the dye from this herbaceous plant is red. In the past that became Turkmenia's national colour, as it were. The garments of the Turkmen women were dyed with madder and stood out against the lacklustre background of the Turkmen landscape. They wore long red tunic-like robes called *keteni*, which many a Turkmen poet has glorified in song. Actually, *keteni* is a sort of material treated with red dye, and the garments made from it have also become known by the same name.

At one time red garments were also worn by most of the men, but as distinct from the women's *keteni*, the colour was much darker, more like table wine. This was also derived from the madder and combined with other natural dyes.

The Kopet-Dag yellow dyes are also beautiful. Though used to a lesser extent, that colour has become as much a part of Turkmen ornamentation as red. In clothes and carpets, yellow is second only to red.

More than 20,000 weavers in the republic are engaged in making carpets, which form one of the principal items on Turkmenia's export list.

In Turkmenistan, the art of carpet-weaving reached a new high after the establishment of Soviet power. Carpet-weaving co-operatives were organized and special schools opened for weavers. The Carpet Union, which was set up in 1926, united all the weavers in the republic and established its own experimental art workshops. For the first time in the history of the Turkmen people, the weavers began to portray nature and man in their designs. There were many setbacks at first, for as works of art the carpet-portraits turned out to be much poorer than the famous ornamental rugs. In the long run, however, success was achieved through the joint efforts of weavers and designers.

Some of the most striking examples of this Turkmen national art are on display at the Museum of Fine Arts in Ashkhabad. There the

carpets hold the admiring and exacting gaze of the visitors much like paintings in a picture gallery.

Two of the carpets in the museum attract the greatest attention not so much for their artistic qualities as for the fact that they are touching human documents that vividly show how greatly the Revolution has changed the consciousness and life of Turkmen women.

One of these is a big carpet that was woven in Mari in 1927 by an unknown weaver. It is designed in the usual Tekke manner, but the weaver boldly violated the age-old tradition forbidding the portrayal of human faces: in the lower border she wove a picture of the great Lenin.

One must be able to visualize the fierce class struggle that was on in Turkmenia in those years in order to appreciate the revolutionary daring of this unknown daughter of the Turkmen people whose carpet-slogan was a challenge to the antiquated way of life in the old *aul* and a call to the women of Turkmenia to give active support to the revolutionary undertakings of the Soviet Government.

The other carpet, woven in 1929 by a Geok-Tepe weaver named A. Palvankulieva, carries a picture of Lenin in the centre and was the first rug-portrait made in Turkmenia.

Like the folk bards and story-tellers, who gave ever greater expression to the heroic deeds of the Revolution during the decisive years of socialist construction, the weavers ousted pointless ornamentation and moved the living human image to the fore.

In 1953, when it was decided to mark the 300th anniversary of the re-union between the Ukraine and Russia on a nation-wide scale, weavers Maya Muradova, Nabat Meredova and Gerek Chariyeva started work on a carpet-portrait of Bogdan Khmelnitsky. This carpet shows how deeply realism has penetrated into the art of carpet-weaving during Soviet years.

There are other places besides Ashkhabad where Turkmen carpet-pictures can be seen. A carpet-portrait of Maxim Gorky, which likewise must be ranked among the outstanding works of Turkmen national art, hangs in the building of the Union of Soviet Writers in Moscow.

The tools used by weavers today are much the same as they were through the centuries: they are a loom, a comb, and shears. However,

the range of colours has been substantially extended. Formerly, the weaver could choose from only seven colours, but now the experimental carpet workshops in Ashkhabad have placed up to three hundred colours and tones at the weaver's disposal.

In preparing for the pre-war Ten-Day Festival of Turkmen Art in Moscow, the weavers made a carpet-curtain for the Bolshoi Theatre. This was the biggest carpet in the world, measuring 2,083 square feet and weighing more than a ton. Its design and colour scheme contained everything that tradition values in a carpet.

The attack of the fascist hordes against the Soviet Union prevented the Turkmen Art Festival from being held, and the wonderful carpet was kept in the Museum of Fine Arts in Ashkhabad for the duration of the war.

The museum was destroyed in the earthquake of 1948.

In the summer of 1952, a travelling exhibition of portrait- and picture-carpets of the Ashkhabad experimental workshop visited one of the towns of Kara-Kalpakia. Thousands of people visited the exhibition and the visitor's book was filled with hundreds of enthusiastic entries. "I have seen many unequalled works of folk art," wrote a Kara-Kalpak irrigation expert, "but what I saw at the carpet exhibition outbalanced all my ideas of the artistic possibilities of carpet-weaving."

2

Geok-Tepe, the chief town of yet another district in Ashkhabad Region, is situated approximately half way between Bakharden and Ashkhabad. Together with Bakharden, this town pioneered the development of fine-fibre cotton plantations in the Kopet-Dag foothills. Grapes are the second staple crop in the district (Geok-Tepe wine is the finest in Turkmenia), but in recent years silkworm-breeding began to play an increasing role in the economy of the district's collective farms.

Like the carpets, silk won renown for Central Asia many centuries ago.

The Arab geographers of the first millennium of our era were great admirers of Mari silks. The Khiva and Margelan silks were also famous. But in the Kopet-Dag foothills silkworm-breeding is

still a young branch of agriculture, being no older than the Soviet power.

The main components of silkworm-breeding are the larvae of the bombycid moth and the leaves of the mulberry-tree which serve as food for the voracious silkworm.

The mulberry is a common tree in the Kopet-Dag foothills, but the bombycid moth had to be brought from Murghab or Chardjou. In Soviet years, a larvae factory was built in the settlement of Firyuza, near Ashkhabad, and since then Ashkhabad Region has been making rapid progress in silkworm-breeding. On the eve of the war, the cocoon deliveries made to the state by the Kopet-Dag collective farms amounted to one and a half times the quantity formerly produced by the entire republic.

The development of silkworm-breeding changed not only the region's economy but also its landscape. In order to obtain a concentration of leaves on the crowns and thus provide the silkworm with more food, the side branches of the mulberry-trees are cut off at the trunks. Thus, instead of thick foliage, the trees growing along the *ariks* have short, bare trunks and small, almost round crowns. That makes them look sleek and domesticated. The wild mulberry does not grow in sufficient numbers to satisfy the demand and that is resulting in the laying out of special mulberry-tree plantations.

The eye has yet to grow accustomed to the sight of these plantations with trees growing in straight rows as in an apple or apricot orchard. If there had been birch-tree plantations in Russia, they would have been as much a source of wonder to the rural population there as the mulberry-tree plantations are to some of the old people in Bakharden and Geok-Tepe districts.

Cotton, grapes, silkworm cocoons, barley, fruit and melons make up the renown of peaceful, verdant Geok-Tepe, which once was a fairly strong Tekke fortress. Today, it is a typical small district town of the Kopet-Dag foothills.

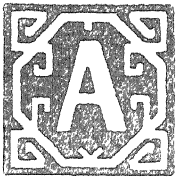
In the autumn of 1948, Geok-Tepe was seriously damaged by the earthquake that affected an area stretching from the town's railway station to Gyaurs, which lies to the east of Ashkhabad.

A considerable part of the town has already been restored.

ASHKHABAD

# Chapter I

## 1



SHKHABAD, CAPITAL of Turkmenia, is a sunny city with white houses and broad, straight, busy but not noisy streets lined with acacias, thujas, honey locusts, English elms and plane-trees; with narrow, brick-covered *ariks* that now and then are filled with running water; with asphalt pavements that grow soft in the midday sun in July. It has numerous schools, technical colleges, establishments of higher learning and research institutes; the latter are guided by the Academy of Sciences of the Turkmen S.S.R., which was opened in June, 1951.

Under the restoration plan, Ashkhabad will be extended considerably to the southeast and north, in the direction of the desert, which will be separated from the city by a broad belt of orchards.

The southernmost of the Soviet republican capitals, it is on the 38th parallel, which passes through South Spain and the African coast of the Mediterranean, and in the Far East divides the Korean Peninsula.

There is always an aureole of charm about cities that lie at the foot of mountains or by the sea. Ashkhabad is particularly beautiful in the spring when the almond-trees are in bloom and fresh, early grass covers the hills standing in a semi-circle around its southern outskirts. When seen in the early morning from Karl Marx Square, the main square in the city, the landscape in the direction of the mountains towering in the south is breath-taking.

Karl Marx Square is several scores of miles away from the summits of the Kopet-Dags. The first chain of mountains, however, is

much closer to the city, while the hills, some of which are very high, are in the very outskirts.

Any street affords a view of the mountains. Except for the 80 odd days in the year when winter and spring fog or rain throws a grey curtain around the Kopet-Dags, there is always a cloudless and not too brightly blue sky hanging over the city and the mountains. Ashkhabad has more than its share of sunshine; it has more cloudless days than any other city in the Soviet Union.

The colour of the houses always added to the city's lustre. As in Bukhara and Mari, the houses and fences were built of grey brick, but the abundance of limestone in the Kopet-Dags has enabled the people to be liberal in the use of whitewash. From the air or any of the nearest hills, the city with its tidy little white cottages among the verdure of the orchards and streets looked like a handful of gleaming sugar accidentally sprinkled on grass.

The earthquake destroyed most of the buildings. New houses are rising rapidly on the old sites. Built more solidly, with a greater earthquake resistance, they will be painted in Ashkhabad's traditional bright colours; in that respect the cityscape will remain unchanged. However, the architecture of the houses will be richer and gayer and more trees will be planted in front of every building and in every street.

The colouring of the houses has undergone certain modifications. Formerly, all of them were white. The cityscape proper had three main colours—the blue sky, the green trees and the sugar-white fences and walls. The multi-coloured Kopet-Dags alone atoned for the poverty of the city palette. The new houses are likewise painted with bright colours, but these include light-rose, pale-pistachio, cream, yellow and blue tones. A city whose whiteness was somewhat tiring to the eye on a sunny day, Ashkhabad has burst into flower in the full sense of the words.

2

The closeness of the mountains, the blue sky, and the clean, straight thoroughfares with their luxuriant trees make the capital of Turkmenistan extraordinarily charming, in spite of the fact that

sometimes it is hard to remain for long in the almost vertical rays of the Transcaspian sun.

On especially hot days, some relief can be found in the surrounding hills. They are open to the sun on all sides and nothing but grass grows on them, but their advantage is that in the summer there is always a breeze.

The entire city can be seen from the hills.

Before the earthquake there were practically no tall buildings in Ashkhabad and that brought every two-storey house into full view from the hills, much in the same way as in Moscow today every twenty- or thirty-storey building can be easily made out from Lenin Hills. In the autumn of 1948, the highest points in Ashkhabad were the elevator built north of the railway in the vicinity of the railway station, the square grey tower over the Dzerzhinsky Textile Mill, the broad chimney of the silk-winding mill, the two slender minarets over the dome of the former mosque in Svoboda Street, the two graceful towers over the long central city hospital near Karl Marx Square, and the beautiful railway station building that was erected during the Second World War.

The cityscape is now quite different. Looking about him today, the traveller will be amazed at the ability of Soviet people to heal the gravest of wounds. Hundreds of big houses have already been built in various parts of the city.

The hills also give a view of the desert that begins north of the Turkmen capital, a mile or two beyond the railway.

3

Right up to 1917, most of the population of Turkmenistan lived in *auls*. Speak to any of the older inhabitants of Ashkhabad, with any veteran railway worker, weaver, writer, academician, or Party or government functionary and you will find that in almost every case they came from an *aul* and were born in a *kibitka*. They played their childhood games by the *ariks*, or near a well in the desert with sheep and camels grazing close by. The situation is different with the young people. Many of the young men and women in Ashkhabad were born in the towns of Soviet Turkmenia.

Settlements were usually founded close to sources of water: a stream flowing down the mountains, a *kyariz,* a canal, or, if it concerned the nomad stock-breeding *auls*, a well dug in the desolate sands or *takyrs*. There had to be water, whatever the source, for it was the basis of the *dekhan's* livelihood. Yet even the richest stream did not ensure well-being in the *dekhan's* family. The masters of the water and, consequently, of all earthly blessings were the clan headmen, the beys, and their myrmidons, the mirabs, who rationed out the precious fluid. Most of it was used for the bey's fields or flocks and herds and nobody cared what happened to the *dekhans*.

Prior to the October Revolution, the value of a farm was for long centuries determined not by the quantity of land—there was plenty of dry land all around—but by the amount of water it received for irrigation. Even in the oases, water was valued higher than gold and, it goes without saying, human life. A claim for a quota of water could be put forward only by the male representative of a family with the provision that he was married. That custom often led to marriages between infants. But in order to have even such a young bride for his son, the poor peasant had to pay *kalim* (bride money) for her. That was always beyond his means and he usually turned for help to a rich relative or to a "benefactor" in the person of a bey. The latter would pay the *kalim*, but in return demand either a share of the water for whose sake the marriage contract was concluded or payment in kind—sometimes both the one and the other. That made a vicious circle: in order to have water, the poor peasant bought his son a bride, but in order to pay *kalim* for her he had to give away part of that water or become a labourer. Instead of dwindling, the debt to the bey usually grew with each passing year. When the poor peasant's son reached boyhood, he usually entered the bey's service to pay off his father's debt, becoming a shepherd and often spending most of his life amid the *barkhans,* protecting the sheep from wolves and knowing only obedience to the head *chaban.*

The position of the *dekhan* went from bad to worse. The beys and the headmen waxed rich at the expense of the *dekhans*, who were entangled in thousands of age-old prejudices and did not understand the real cause of their misfortunes.

The *dekhan* was inclined to blame everything on fate, on heaven if his fields were not watered, or on the "will of Allah." Sometimes, when he received an unjust quota of water, he blamed the mirab and when tsarist rule was established in the Transcaspian he blamed the official who was at one with the mirab. It seldom entered his mind that it was not the river, heaven, the mirab, or even the tsarist official who was to blame, but the whole system in which the white tsar, his officials, and the *aul* beys, mirabs, and clan headmen made up the links of the chain that bound him hand and foot.

That was the situation in every *aul* when, in 1881, the *aul* of Ashkhabad was chosen as the site for a military fort and the administrative centre of the Transcaspian Region.

4

The new town's first structures were a fort, built of sun-baked bricks, and houses for the officers and officials, who elected to live closer to the fort, away from the nomad camps and *auls*.

The ruins of the fort have survived to this day. In the shape of a clayey mound, known locally as "the hill," they occupy part of the inner courts at the corner of Pervomaiskaya and Gogol streets.

From the very beginning, Ashkhabad had two natural centres—the fort and the railway station. The aristocratic residential district was situated close to the fort. The houses were thick-walled, the windows barred, and there were counterforts at the corners. The thick walls and counterforts were meant as protection against any contingency that could arise in a strange land. Because of the thick walls, there was some measure of coolness in the houses even in the hottest months. Every house had a garden around it and no effort (usually somebody else's), money, and water was spared to keep it in good order.

The railway station became the centre of another district, which was settled by railway workers, who came from Central Russia or the Caucasus, and by handicraftsmen. The houses were lower and closer, the gardens smaller, and the streets dustier.

In this district the inhabitant of the *auls* was not shunned. The tenants of the little cottages on the outskirts had more affection for

the poor *dekhan,* who brought a sack of onions or a few dozen musk-melons to the market on an ass, than for the people in white tunics or silk dresses and gay parasols who drove to the town garden in the evenings.

The town garden, whose shady paths were on the border of the two different social worlds of Ashkhabad, was on the edge of a wide, straight road running east to west. That road was part of an ancient caravan route. When the railway was built, houses began to spring up on either side of this road and it gradually grew into a street.

There was yet a third district, where all the business was transacted. The shops, booths, and even houses of the traders were concentrated around a gloomy inn that was situated about half a mile from the fort. The richer merchants built their garden-inclosed houses as far as possible from the dusty market.

There was a Tekke bazaar west of the central market. That was where the *dekhans* went to buy their flour, textiles, and kerosene, and to sell vegetables, musk-melons, grapes, and wool.

The bazaar was regarded as an outskirt, since beyond it began the desert and the caravan paths penetrating deep into the country.

Ashkhabad grew rapidly. Towards the outbreak of the Revolution it was an important regional centre with two schools, an officer's club, a theatre, a good museum of regional studies, a library, and two hospitals. The services of all these cultural establishments, however, were available only to the prosperous upper strata of the town's population. For the working people, Ashkhabad was a town that was stifling hot and dusty in the summer and muddy in the winter, with no conveniences all the year round.

A church, whose cross and dome could be seen for miles around, was built on contributions from the officials and Christian merchants.

The Moslem merchants built a mosque in another part of the town. Its huge dome and graceful minarets could be seen from a greater distance than the cross on the Orthodox church.

Peacocks with magnificent tails wandered about the portico around the mosque or roosted on the railings.

There were no peacocks near the Orthodox church, but passers-by were attracted by the deacon's deep bass. People swore that on a still day it could be heard in the Great Balkhans.

5

Ashkhabad was completely transformed during Soviet years, but in the initial period after the Revolution there seemed to be scarcely any outward change. As before, the little white cottages basked in the sun. Water gurgled in the *ariks*. Camels and phaetons raised clouds of dust in the streets. Yet the city was already different, for the people had changed. The inhabitants of the outskirts and surrounding *auls* came to live in the principal streets as masters of the city.

Once a town of officials and merchants, Ashkhabad became a city of workers and students. Schools were opened. More and more industrial enterprises were built. Ashkhabad was no longer a town of foreigners but the real capital of Turkmenia, the centre of Turkmen science and culture, and the birthplace of Turkmenia's industry.

The city's architecture changed, too. Handsome spacious houses were built to replace the low, squalid dwellings. First the pavements and then the roads were covered with asphalt. The cracking of whips and the clattering of hoofs gave way to the honking of automobiles. More trees were planted and new gardens laid out. A bronze statue of Vladimir Ilyich Lenin, the liberator of the working people of the east, was raised on a coloured pedestal in one of the central squares that was converted into a park. In the outskirts, smoke began to rise from factory chimneys. The difference between the centre of the city and its outskirts was gradually erased.

6

Until the Revolution, there was practically no working class in Turkmenia; the Dzerzhinsky Textile Mill, built during Soviet years, was the republic's first major industrial enterprise. It was opened during the first five-year plan, when a fierce class struggle was raging in the *auls*. Collectivization was bitterly resisted by the nationalists. The beys and their henchmen did all they could to hinder the revolutionary transformation of *aul* economy and life. The resistance of the beys to the measures of the Soviet Govern-

ment gradually took the shape of open war. The roads became infested with mounted *basmachi* gangs which terrorized the peaceful population and committed outrages against the rural activists. People were murdered in broad daylight. The murderers and saboteurs tried their hardest to drive a wedge between the poor people and the Soviet power and to alienate them from the collective farms.

In a situation where the old way of life was being shattered in a radical, revolutionary fashion, the building in Ashkhabad of a big industrial enterprise where the main working force would be drawn from among the local population was not only a production triumph. It was the beginning of a new chapter in the history of the Turkmen people. The people, who, in the main, were nomad herders or tillers of the soil now turned to building their own national, socialist industry.

At the textile mill, woman, the recluse of the *auls*, took her place beside the men workers for the first time. That freed the slave of yesterday from political oppression. By going to work, the Turkmen woman took the path to emancipation and no longer was any force able to turn her back.

In those years the street where the Dzerzhinsky Textile Mill was located could be called the principal street of the whole of Turkmenia.

At the mill the women widened their range of knowledge and their appearance as workers strengthened the sacred fraternity between the Turkmen and Russian peoples. Young Turkmen women were taught to handle machines by Russian men and women workers and many fast friendships were struck between them.

The names of some of the leading women workers of the Ashkhabad Textile Mill are known throughout the Soviet Union. One of them is Amangul Mammedova who took part in the proceedings of the 19th Congress of the Communist Party of the Soviet Union. A former *aul* girl, she rose to heights that are really fabulous compared with what the life of the Turkmen woman was before the Revolution. Annogozel Ovezova, who is also a weaver at the Ashkhabad Textile Mill, was elected to the Supreme Soviet of the U.S.S.R. in 1954. The life story of Annagul Chariyeva, a Turkmen woman weaver, was printed in a Turkmen magazine. It would

be no mistake to say that the life of any woman worker of the Ashkhabad mill could provide material for a thrilling story.

There is a great deal of poetry in the story of the conversion of yesterday's slaves into workers and public figures who are busy building a happy life for themselves and their people.

Ogulkurban Avdimova was a little girl when the textile mill in Ashkhabad was built. In 1928, she was ten years old and lived in the *aul* of Arap-Kala, Kaakhka District. She did not know a word of Russian, and when her elder sisters, Orazjamal and Kyurbanjamal, mentioned the word factory in Russian she would ask what they meant. That year, together with many other Turkmen girls and women, Ogulkurban's sisters went to Moscow to study under the weavers at the Reutovo Mill. Upon their return, they went to work at the Ashkhabad mill. Ogulkurban listened to her sisters' descriptions of Moscow and of the wonderful machines they saw there, and promised herself that when she grew up she would learn to operate one of these machines and become a weaver, too.

Ogulkurban was eighteen when she finished school and first crossed the threshold of the textile mill in Ashkhabad. That day she entered the world of her dreams, seeing it with her own eyes for the first time but knowing a great deal about it, for she had decided on her trade when she was still at school.

She was quick and clever and experienced weavers soon taught her to understand and operate machines. Her first mentors were women weavers from Russia. They taught her how to tie a broken thread quickly and to attune her ear to the life and work of the machines. Many years have passed since the day Ogulkurban came to work at the mill, but she continues to treasure the memory of her elder Russian workmates whose help made her first independent steps in life easier.

Ogulkurban's skill won for her the high regard of her fellow-workers. In the 17 years that she has been with the Ashkhabad mill, she wove 2,187,000 yards of material. In the *aul* of Arap-Kala, where she was born, most of the women have been weavers for centuries. But it is doubtful whether in the past hundred years all the women of the *aul* wove half as much material on their home-made looms as did their younger sister who used modern machines.

Much has changed in Ashkhabad since the year Ogulkurban finished school and went to work at the textile mill. Industrial development proceeded on a grand scale and many new enterprises were built. These include two glass works, a tannery, a footwear factory, a knitted wear factory, a machine-repair works, a winery, a meat-packing plant, a flour mill, and many others.

Other establishments, serving the cultural needs of the people, were built in the city: these were a film studio, clubs, libraries, theatres, a huge printshop, publishing houses, and many medical establishments.

Turkmen women are holding down some of the most responsible jobs in almost every industrial or cultural establishment. Among them are Ministers, Deputy Ministers, and leading members of executive committees of district and regional Soviets. Women are working as laboratory assistants in research institutes, school-teachers, and collective-farm agronomists.

Prior to the October Revolution, there were very few women who knew the alphabet and could sign their names. Today there is a large body of women students at the Ashkhabad State University and at the many other institutions of higher learning in Turkmenia.

In the first post-war year, the Turkmen State Opera and Ballet Theatre staged Chaikovsky's *Eugene Onegin* in the Turkmen language. The role of Tatyana was played by Maiya Kulieva, who was born in an *aul* during the Revolution.

## Chapter II

### 1

The destructive earthquake of October 6, 1948, was a heavy blow to the Turkmen capital and the entire Turkmen people.

It was the severest earthquake in the history of the U.S.S.R. At 17 minutes past one o'clock in the morning (Ashkhabad time), when most of the people were asleep, an increasingly loud rumble came from the mountains. It was heard by the people who were still up, but did not awake the sleepers. The first tremor shook the city in a vertical plane. It was so violent that it knocked people off their feet.

"It seemed as though a cannon were fired from under the ground," say eye-witness accounts. This was followed by severe horizontal tremors. In the few seconds that they lasted they destroyed most of the city.

On October 7, all the newspapers in the Soviet Union carried a TASS report, which stated:

"On October 6 ... an earthquake with a force of up to 9 points occurred in the region of Ashkhabad, Turkmen S.S.R., causing great damage. A large number of dwellings were destroyed and there are many victims. An extraordinary commission has been set up by the Council of Ministers of the U.S.S.R. to render immediate assistance and to undertake urgent measures to liquidate the aftermaths of the earthquake. The commission has taken steps to send food and medical assistance to the population in the stricken area and to provide shelter for those who have lost their homes...."

The calamity that struck the city was borne courageously by the population. After freeing themselves from the debris, the first thing that the survivors did was to hurry to the assistance of those who were still pinned down. Rescue work was started as soon as the choking dust, which smothered everything in darkness, settled. People did not think of their belongings; their only thought was to save the lives of their neighbours.

Aircraft carrying doctors and medical supplies from Krasnovodsk, Tashauz, Baku, Tashkent and Moscow began to land at the Ashkhabad airport when the first rays of dawn on the morning of October 6 lit up the horizon.

The Communist Party and the Soviet Government did everything to help the people as quickly as possible. On October 6, by midday, all the seriously wounded were on their way by aircraft to Azerbaijan or Uzbekistan. That same day the authorities started handing out food. The sky over the city was filled with the drone of arriving and departing aircraft. Field hospitals were set up in squares that were not threatened by falling walls.

On the second night most of the people were given temporary shelter in tents brought by aircraft. Tashkent sent thousands of cotton quilts, since the nights were already cold.

Rehabilitation began simultaneously with the rescue work. By October 8, the city had electric light and six days later the bakery was already working at its full capacity. The aircraft carrying bread were now used for other purposes.

In a few days all the offices resumed business and lessons began in the schools, which carried on under the trees in the gardens and parks.

Supplies continued to pour into Ashkhabad by air and by rail; traffic along the railway was resumed at 7 a.m. on October 8. The country gave Ashkhabad everything it needed: machines, food, building materials, clothes, and medicine. People of various professions and trades—doctors, engineers, architects, government representatives, workers—arrived to give all the help they could.

A continuous stream of cables—offers of assistance from thousands of people, collective farms, and enterprises—were received in Ashkhabad by offices and individuals. All the peoples of the boundless Soviet land hospitably opened their arms to their stricken Turkmen brothers.

But the people of Ashkhabad were far from thinking of leaving their city. Even the wounded, if their wounds were not serious, refused to be evacuated.

"We shall restore our Ashkhabad!", "All out to restore Ashkhabad!" were the slogans that were printed in those days in the newspapers or drawn in paint or charcoal on the surviving fences and walls. These words expressed the thoughts and feelings of every citizen of Ashkhabad. The desire to restore the city helped the people overcome the pain caused by personal loss and gave a purpose to their feelings and actions.

Every issue of the *Turkmen Iskra*, the republican newspaper, tersely described the mass heroism of the people in the hours of trial.

Here is an account of an eye-witness who was at the Ashkhabad airport during the catastrophe:

"The planes for Moscow, Tashkent and Tashauz had taken off and we had settled down to the usual night routine. The weather forecasters were studying a graph of the weather. The wireless men were on the look-out for any signal from the aircraft flying over the Kara Kum and the Caspian. Suddenly we felt a shock, then

another.... In a few seconds the beautiful airport building was nothing but a heap of ruins.

"Earthquake ... That was realized by the pilots, mechanics, and wireless operators buried under the ruins. They crawled out of the debris, digging each other out with their bare hands. Everybody who could ran to the planes. Yuri Drozdov, a mechanic from Moscow, who was badly wounded, reached the cabin of an Il-12 passenger aircraft and started sending out distress signals. Somewhere in Omsk, Siberia, a vigilant wirelessman received the signals. Drozdov was heard in Baku. Our great capital, Moscow, learnt of the calamity in the Central Asian city.

"The engines of aircraft began to hum...."

2

Some of Ashkhabad's districts were restored so quickly that people who did not see the entire city in ruin will never believe that they were affected by the disaster.

According to the general plan of restoration, the city's former architecture will generally be retained. The only difference is that the buildings will have a finer finish, will be brighter and more convenient.

The district around Karl Marx Square will be the city's main business centre. Close by, where Karl Marx Street intersects October Revolution Street, there will be another beautiful square lined with monumental public buildings. These two squares will be connected by an avenue on the northern side of which there will be a park with ponds, fountains and sculptural groups.

The word "Ashkhabad" means "city of love," or, to be pedantically exact, "city in love" (*ashik-abad*). People who visited the city before the earthquake will agree that in the months of April and May Ashkhabad fully justifies its name.

The city is lovely in the spring when in its many parks the tall, luxuriant trees dress themselves in new foliage, or in the autumn when these same trees bend under the weight of fruit.

The people of Ashkhabad are proud of their Recreation Park, which occupies several blocks almost in the heart of the city—between

Svoboda, October Revolution and Engels streets. Since the earthquake the park has been considerably extended. The drab, single-storey little cottages have been torn down and their owners have moved to the new houses built in other districts. In the spring months of 1950 and 1951, thousands of Ashkhabadites spent their evenings and Sundays planting trees. An hour or two in the Ashkhabad sun is long enough to appreciate the opportunity of resting in a garden where the foliage of the trees is thick and does not let the rays of the sun through even on the sultriest midday in July.

One of these gardens bears the name of Lenin. It is situated in a busy part of the city, at the intersection of Engels and Pushkin streets opposite the Turkmen Academy of Sciences.

In October, 1948, it was difficult to believe that the millions of tons of broken brick would ever be taken out of the city and the sites cleared for new houses. Yet a year later amid the little board and clay houses erected as temporary shelters, there were big buildings which made it possible to visualize the city's future outlines. By the winter of 1953, Ashkhabad regained the appearance of a big metropolis. More than half of the people have already moved into new, convenient dwellings.

Naturally, the traces of the disaster are still in evidence. But these are steadily disappearing. The hundreds of houses that have already been built or are under construction have more conveniences than those that were destroyed by the earthquake. The only shortcoming is that many of them look much too alike. True, this is not very noticeable, because they stand not in rows but are distributed throughout the city. This indisputable shortcoming, however, was noticed in time by the town builders. The houses that have been built since 1953 introduce the necessary variety into the future architectural ensembles of the different streets.

Totally destroyed eight years ago, the city is living again. It still has gaping wounds, but already it is majestic and beautiful. In a few years, the long-standing conviction of the people that their city is the most beautiful in Central Asia will be shared by everybody.

3

The task of drafting a plan for the new Ashkhabad was by no means an easy one. The seismological conditions did not allow architects to design tall buildings. They had to draw upon every resource in their power in order to make low buildings look monumental. That was achieved by giving the buildings long façades. The House of the Council of Ministers in Gogol Street is very imposing in spite of its having only two storeys. The proportions of the double-storey building of the Central Committee of the Communist Party are gigantic. The wonderful interior decoration of these two buildings somewhat resembles the Moscow Metro. The architects of the big houses in new Ashkhabad did not fall prey to the great temptation of giving the city eastern features. The best houses combine classic traditions with modern requirements. Among these are the Railwaymen's Club, the "Ashkhabad" Cinema, and the City Hospital. The Drama Theatre, which is under construction near the Recreation Park, will be one of the city's biggest buildings.

The new railway station, the biggest in Central Asia, is nearing completion.

All the houses are being built in a way that precludes their destruction in the event of another earthquake. The walls and ceilings may shake but they will not be damaged.

Ashkhabad always had many gardens. No matter from what direction the traveller approaches the city, from Chardjou or Geok-Tepe, he gets a view of a dense thicket hugging the foothills of the Kopet-Dags before he sees the green- or grey-roofed white houses between the trees. Acacias, thujas, apricots, and almonds grow along every fence and wall and every inhabitant in the city seeks to lay out a little orchard near his house or plant at least one tree in front of its windows.

In some streets the trees form an arbour that leads from house to house. Before the earthquake, trees were the city's principal decoration.

There is more greenery in Ashkhabad today than ever before. Even during the months when the trees are bare, from the end of November until March, the houses retain their simple beauty. That is combined with slateliness and grace.

4

In Ashkhabad, the shortage of fresh water was especially acute in the years before the earthquake. The city gets its water from the small Ashkhabadka and Keshinka rivers and several *kyarizes* and streams. The quantity was sufficient to cover Ashkhabad's needs when it was a military fort and even when it grew into the chief administrative and trading centre of the Transcaspian Region. But when it became the capital of a socialist republic with an increasing population and a rapidly expanding industry, the water it received proved to be in short supply.

The trees in the streets were the first to suffer. The water from the mountains, which at one time flowed freely along the *ariks* at the foot of the acacias and plane-trees, was now channeled into pipes to serve the needs of the people—the dwellings, schools, and factories. The *ariks* sometimes remained dry for weeks on end. That placed the grass, trees and shrubs in the gardens and streets on short rations.

The newcomer could not notice that at once. As before, Ashkhabad could be called a city of parks. The roots of the thirty- and forty-year-old trees had penetrated deep enough into the soil to allay any immediate effect of this shortage of moisture. In Karl Marx, October Revolution, Poltoratsky, and some other streets the trees were of such dimensions that their trunks took up a good half of the pavement, while in some cases the pedestrian had to step down to the roadway in order to continue on his way.

But a closer look showed that the leaves were getting paler, that white dust was settling in the gardens, and that the grass in the parks was not as dense as in former years.

Until recently there were several plans to solve Ashkhabad's water problem. These envisaged either searching for sources of water in the vicinity of the city itself or pumping it along pipes or open canals from big, distant reservoirs.

The wells sunk around Ashkhabad often reached water-bearing layers and the question of ensuring the capital with water seemed close to solution. But all these efforts ended in disappointment. The old *kyarizes* began to yield less water as soon as the new wells were

opened. The supply in the *kyarizes* diminished in exact proportion to the amount of water taken out of the wells. Consequently, these were not new sources: the city was drawing upon the same source through different channels.

But the hydrologists were not discouraged, and in recent years their investigations in the Kopet-Dag foothills were rewarded with success. A rich, water-bearing layer that is not linked with the sources feeding Ashkhabad at the present was found close to the city. Efforts to pump the water have already been made and if the initial observations prove correct the Turkmen capital will have all the water it needs.

By decision of the Government, 64 test wells will be sunk in Ashkhabad Region between 1954 and 1956. This will enable the people to plant more trees than called for in the plan. There will be new fountains to freshen the dry and sultry air during the summer. Swimming pools will be built. The leaves of the old trees will be greener than ever and the saplings planted to make a solid wall around every new house in restored Ashkhabad will grow sturdier with every passing year.

While water was being sought in the vicinity of Ashkhabad, plans were drawn up to pipe water into the city from big rivers.

There are three rivers at a comparatively short distance from Ashkhabad. They are the Tedzhen (94 miles to the east), the Murghab (85 miles east of the Tedzhen), and the deep Amu-Darya (155 miles east of the Murghab).

Under ordinary conditions, the choice would naturally have fallen on the Tedzhen, since that river is the nearest. However, the fields in the Tedzhen Oasis are themselves affected by drought every year. The Tedzhen Reservoir, which was built during the first post-war five-year plan, is just big enough to meet the needs of Tedzhen District alone. What about the Murghab? The trouble is that the delta of the Murghab is the cotton centre of Turkmenia and yields the main harvest of fine-fibre Turkmen cotton. The land around the Murghab may, without exaggeration, be called a gold-field; yet a considerable part of it remains undeveloped because the water from the Murghab, as in the case of the Tedzhen, is used down to the last drop to irrigate the existing fields.

That leaves the Amu-Darya. That great river has enough water for a canal that would cross the southern Kara Kum, supply the lower reaches of the Murghab, bring life to the rich, uncultivated lands along the lower reaches of the Tedzhen, and meet the requirements of Ashkhabad.

More than 300 miles separate Ashkhabad from the Amu-Darya. The idea of building such a long canal seemed an idle dream only yesterday. But technical thought of the epoch of socialism knows no barriers and the Kara Kum Canal from the Amu-Darya to Ashkhabad through Mari and Tedzhen is a scheme that will be realized in the near future.

## Chapter III

1

Territorially, Ashkhabad is situated on the republic's outskirts. However, in view of the way the inhabited points and the lines of communication are distributed, it may, without any great strain on the imagination, be considered as the heart of Turkmenia.

Approximately 310 miles lie between Ashkhabad and Krasnovodsk, the "western gates" of Central Asia. The same distance separates it from Chardjou, Turkmenia's "eastern entrance," and from Tashauz in the middle of North Turkmenistan. Kushka and Kerka, the southernmost towns of the republic, are likewise situated some 300 miles away from Ashkhabad.

Under the present level of the airways, no more than two or three hours are needed to reach any regional centre from the Turkmen capital.

The airways are playing an important role in the life of the republic, placing even the remotest oases within easy reach. The collective farmers in some of the outlying oases think nothing of reserving a plane in order to go to a theatre in Ashkhabad and return home early the next day. This is a tremendous leap from the pre-revolutionary days, when at least two weeks were needed to make the painful journey across the Kara Kum from Ashkhabad to Tashauz. Communication between Ashkhabad and other distant oases was as difficult.

Today, besides the passenger and cargo service, aircraft carry water and whole herds of livestock. Water is carried by the aircraft along the regular line between Ashkhabad and the sulphur plants in the heart of the waterless Kara Kum. Huge cargo planes make the journey several times a day, bringing water from Ashkhabad and carrying away sulphur.

Ashkhabad, therefore, is an important transport junction besides being the republic's political, industrial, administrative, and cultural centre. In Turkmenia, there is about the same number of air lines as of railways, highways and caravan routes. The plane has by no means ousted the camel caravan. Nature has adapted the camel to life in the desert so perfectly that Turkmenia, in addition to exploiting new types of aircraft, is encouraging camel-breeding on a large scale as part of her plan to develop her transport facilities.

Caravan routes link Ashkhabad chiefly with desert-bound regions. South of the Turkmen capital there are modern tarred highways of which the most picturesque is the highway to the summer resort of Firyuza.

2

Firyuza is a small settlement cosily situated in a narrow ravine in the Kopet-Dags. It stands on the bank of the rivulet Firyuzinka at an elevation of 2,556 feet above sea level. In the sweltering month of July when hot winds and dust scorch the trees in Ashkhabad and heat the walls of the houses to a temperature of 122-140°F, there is always a cool and shady spot in the gardens of Firyuza.

The bed of the Firyuza ravine is overgrown with plane-trees, walnut and other nut-trees, honey locusts, acacias, ailanthus, mulberry-trees, cherry-trees, apple-trees, and bird-cherry-trees.

Each of the little cottages in the settlement on the right bank of Firyuzinka is surrounded by a garden. There are hardly any permanent inhabitants here as nearly all the cottages are summer residences, holiday homes, sanatoriums or Young Pioneer holiday centres. Bustling with life in the summer, the settlement, with the exception of the silkworm-egg-breeding plant, is quiet and unpopulated in the winter. Since the opening of that plant, Firyuza has been

playing quite an important role in promoting silkworm-breeding in the collective farms.

Winds never blow in Firyuza. There is a beautiful park on both sides of the rivulet. Rose, white, and yellow blossoms cover the trees in spring-time, and by the middle of the summer the boughs are heavy with fruit. One of the sights in the settlement is an old plane-tree with boughs casting a shadow over a good half acre in the park of the Soviet Army Holiday Home. Ashkhabadites always point it out with pride. It takes 24 steps to walk round the tree. The enormously thick trunk gives way to eight lesser trunks a short way up from the ground. This plane-tree, the biggest in Central Asia, has been named "The Seven Brothers." Evidently, the small eighth trunk is not considered a brother and has not been taken into account.

From early May until late autumn the Firyuza Highway is crowded with a never-ending stream of vehicles carrying Ashkhabadites to the cool gardens and parks of the settlement.

The earthquake of 1948 hardly affected Firyuza. The hotel alone was damaged; a second-storey wall crashed to the ground.

3

A description of the environs of Ashkhabad would be incomplete if no mention were made of the ruins of Annau, that are situated some five and a half miles southeast of the city.

The road to Annau is in no way reminiscent of the lovely Firyuza Highway. A continuation of Svoboda Street, it runs through wasteland and reminds one that there is a desert close by. On either side it is bordered with swaying camel-thorns. A thick, white dust is raised by cars, asses, and camels, and the whole road is monotonously grey.

Soon a forest of clay pillars appears between the mountains and the railway line. To the left of these pillars are some embankment-like structures, near which stand the remains of what was, until its destruction by the 1948 earthquake, the imposing portal of a mosque-like structure. This is Annau. The pillars closer to the mountains are the ruins of the town and the "embankments"—of the ancient feudal fortifications, while what we took for the remains of a mosque

are actually the ruins of the famous Annau Mausoleum that was built in 1455 by Khan Abul Kasim-Babur, a ruler of Khorasan and a contemporary of the great Uzbek poet Alisher Navoi.

The mausoleum was a square, brick building crowned with a somewhat flattened dome. Its architecture is typical of many ancient buildings in Central Asia, but the ornamentation on the portal is very original. Instead of a geometrical pattern that is common in the decorations on ancient Moslem structures, the ornament on the Annau portal represents two dragons facing each other with bared fangs. This was a violation of the traditions of Moslem art, which forbade the portrayal of living beings, dragons included. No other ornamentation in the known memorials throughout Central Asia is anything like it.

Excavations around Annau established that one of the embankments near the mausoleum was erected in the third century before our era, that is in the period directly following the decline of the empire built up by Alexander the Great.

The capital of the young Turkmen republic is situated on territory which is among mankind's most ancient cultured lands. The valley at the Kopet-Dag foothills was part of the route followed by people travelling from Central Asia and China to the West. The ruins of ancient structures, settlements, walls and temples can be seen along the railway from Kizyl-Arvat to Ashkhabad and farther to Dushak.

It must be assumed that in ancient times man was not indifferent to the bounties and beauty of this fertile, sun-bathed valley where the combination of mountain and steppe flora makes such a delightful picture today. After the bare gorges or the scorching, waterless deserts, the nomad of the past gladly stopped here, pitched his tents, drank the delightfully cool water from the streams, and let his horses graze in the mountain pastures. Permanent sources of water enabled man to leave his tents and begin building more solid dwellings. He built clay or brick houses, fortifications, and canals.

That happened long before the Tekke tribe settled in this area. The town of Nessa, situated near the *aul* of Bagir, some nine miles from Ashkhabad, is believed to have been built about 2,500 years ago by Alexander the Great. It was first called Alexandropol and was for

some time the capital of a powerful Greco-Parthian kingdom. According to ancient geographers, Nessa abounded in gardens. Canals brought water down mountains to many of the houses, while along some sections it flowed through pipes to save it from excessive evaporation. When the Arabs invaded Central Asia a thousand three hundred years ago, Nessa was a flourishing and wealthy city. Here is what Abu-Isha-Ibrahim ibn Muhammed al-Farisi al-Istahari, the well-known geographer who lived at the close of the first millennium of our era, wrote about Nessa: "The city is rich and abounds in water and orchards. It is as big as Serakhs; there is water in the houses and in the streets; it is a beautiful city and holds sway over big and fertile settlements."

Another Arab scholar, Abu-Abdallah-Muhammed ibn Ahmed ibn Abu-Bekr al Mukadam, who lived in the same century, gave the following description: "Nessa is a big, healthy and beautiful city with plenty of water and other blessings; the trees intertwine, the fruits are delicious, the mosque graceful, and the bread pure. The market has many rows of shops with valuable and rare merchandise. Few houses are without gardens or flowing water. There are 70 streets, all of which are shaded by trees...."

A Soviet archaeological expedition headed by M. Mason, one of the most prominent archaeologists in Central Asia, did much to shed light on Parthian culture.

Incidentally, the expedition established that it was not an invasion that finally destroyed the Parthian capital, as was generally believed, but an earthquake like the one which recently shook Ashkhabad.

Less is known about Annau than about Nessa. It is generally accepted that the town was built in the 15th century by the Timurids, the descendants of Tamerlane. However, it must be supposed that that is a mistake. Annau was probably built much earlier, only it was known by another name and that accounts for the fact that it is not mentioned as Annau by any geographer before the 15th century.

Taken together, the vast expanses of desert with camel caravans moving across them here and there, the ant-hill-like felt *kibitkas*, and the half-buried walls of long-dead towns and settlements give

the newcomer to Turkmenia the wrong impression that this land is much too old and decrepit.

A traveller who is carried away by the super-antiquity of some of the ruins in various parts of Turkmenia may sometimes misinterpret much of what he sees and notice only the traces of the more or less distant past, taking even the dust raised by a passing car for the ashes of time.

For example, beside the ruins of the Annau Mausoleum there is a felt *kibitka* much like the ones that were seen in these places by the hordes of Genghiz Khan or Tamerlane, and by Alisher Navoi when the Sultan Baikara exiled him to the land of the Turkmen. A fire is burning near the *kibitka* and a woman in national dress is squatting by a fire and cooking. On her breast she is wearing a shining plate-size ornament. What classical, almost museum antiquity! An ass is tethered close at hand with a carpet-bag tied to its back. A camel is lying on the sand a little farther off.

The reader will agree that this sounds like an illustration to a story about centuries-long past when the Annau Mausoleum and other ancient temples and palaces were built and which are now studied with such zeal by archaeologists. Surprising how tenacious the ways of the past are. How slowly the old retreats before the new. And the most curious thing is that this *kibitka* is almost within a stone's throw, as it were, of the republic's capital.

However, let us check our indignation at the past's tenacity. Let us ask the woman in the red dress for permission to enter the *kibitka*—that ancient dwelling of the desert people—and to learn more about it and its mistress.

4

The *kibitka* or *yurta* (the Turkmen call it an *ui*, which means house) consists of a folding, wooden frame covered with pieces of felt. The top piece is easily thrown back to let in the air and light. The same opening serves as a flue when a fire is lit inside the *kibitka*. People living in *kibitkas* prefer to do their cooking in the open air on trivets or *tagans*. Bread is always baked outside the *kibitkas* in clay ovens called *tamdyrs*.

Each corner of the *kibitka*, as in a Russian hut, has its own traditional uses. Since the *kibitka* is round and, properly speaking, has no corners, the "place of honour" was on a carpet or a felt spread just opposite the entrance. This was reserved for the master or an honoured guest. The left half of the *kibitka* was for women and the right half—for men. All the furnishing consisted of carpets and felt spreads, quilts, pillows and *chuvals* (bags) of different sizes and materials, which served the nomad as cupboards and chests of drawers.

All these furnishings, together with the *kibitka* itself, could be packed in a few hours and strapped to the backs of camels or horses. For a shepherd who had to follow his flock from one pasture to another this was the most suitable type of dwelling.

Livestock-breeding was the chief occupation of the Turkmen tribes, all of which were either nomad or semi-nomad. Some of the clans settled down in the river valleys and tilled the soil. But the *dekhan*'s wealth depended on how many sheep or camels he had and that determined many features of the Turkmen way of life and the people's material and spiritual culture.

As shepherds, the Turkmen people had no opportunity of developing a written language and that prevented the Sharia, the written Moslem law, from gaining a foothold in the land. In the neighbouring Moslem countries, Khiva and Bukhara, for example, human destinies were ruled by the Sharia, but in Turkmenia it was almost everywhere replaced by the Adat, the oral customary law, while in cases where the Adat could not be applied the people resorted to the *Turkmenchilik*, which, properly speaking, was nothing more than a moral guide.

It goes without saying that in the *auls* both the *Turkmenchilik* and the *Adat* were used by the beys and the headmen to hold the poorer strata of the population in bondage.

After the establishment of Soviet power, almost the whole of the Turkmen people had to be taught to write. Prior to the Revolution, the number of literate people was so small that among the *dekhans* those who could read and write usually had the prefix *mollah* before their names: for example, Mollah-Nepes, Mollah-Kemine. A *mollah* or *mullah* is a Moslem priest, but that does not mean that Mollah-

Nepes, the Turkmen poet of the 19th century, or Mollah-Kemine, the poet and satirist, were priests. They were literate men and were therefore honoured with the prefix *mollah.*

In spite of everything, illiterate, nomad Turkmenia had her own national poetry and literature. Her folklore and classical poetry flourished and were known throughout the land.

In speaking of Turkmen folklore, mention must be made of the tales about the adventures of the poet Kemine, who was loved by the people for his indefatigable struggle against the beys, mullahs, judges, officials, and other oppressors of the *dekhans.* His name became legendary in his lifetime. The people enjoyed repeating his witty sayings and spoke of the pranks he played in order to expose the despotism, corruption, and greed of the *aul* rulers. Thus it came about that the poet Mollah-Veli, nicknamed Kemine, which means "all yours," or, more literally, "your humble servant," became the hero of the stories which are now part of the main stock of Turkmen folklore.

Kemine's poverty is mentioned even in the shortest story. He was a pauper but in spite of that he was cheerful and every word he wrote and everything he did was a challenge to poverty. The following are examples of the genuine folk character of his personality.

Kemine's sons were tired of never having enough to eat. One of them went to Kemine and said:

"Father, when will poverty finally leave us?"

In reply, Kemine only smiled:

"There is still much you do not understand, my son. We are leading a quiet life, we are not hurting anyone, for we are not khans and not beys. Then why should poverty suddenly leave us? Have we done anything to hurt it?"

One night thieves entered Kemine's *kibitka* and began to rummage for something to take away. Kemine did not even pretend to be asleep. At last he could restrain himself no longer and said:

"You're fools. There's nothing to find here by day and here you've come at night to try and find something in the darkness."

The Turkmen people's poetical wealth was not centred around folklore alone. Turkmenia had professional poets and the works of some of them (Makhtumkuli, Zelili, Kemine and Mollah-Nepes) are very popular to this day.

The four poets mentioned above influenced their contemporaries to such an extent that they have every right to be ranked with other classical poets of the East such as Hafiz, Omar Khayyam and Fizuli.

How, one might ask, did poetry circulate in Turkmenia when most of the people were illiterate? How did poems, which were composed hundreds of years ago and which in most cases were not recorded, survive to this day without any considerable changes or distortions?

5

The credit for this goes to men called *bakhshis*, who preserved and disseminated Turkmen poetry.

A *bakhshi* was a singer, a story-teller and a musician and, frequently, a poet as well. Sometimes, as the name implies, he was even more than that. In Turkmenian, a singer is an *aidimchi*, and a musician—a *dutarchi*, *tyuidukchi* or *gidjakchi*, depending on the instrument he plays: the two-stringed *dutar*; the *tyuiduk*, a reed pipe; or the *gidjak*, a primitive fiddle made from a hollow pumpkin. The poet is called a *shahir*. The *bakhshi*, on the other hand, was all that rolled into one.

From the songs and stories of the *bakhshi* the inhabitants of the *auls* learned of their people's past and of the deeds and history of their neighbours.

From time immemorial, the *bakhshi* has been the creator and bearer of folklore and the chief popularizer of ancient poems, both those that were recorded by their authors and those that were never put down on paper.

Through the *bakhshi* the Turkmen people got to know their classical literature at an early age. That ensured the constant and deep influence of ancient poetry on the people. The *bakhshis* were respected and welcomed wherever they went. A *bakhshi* was nearly always present whenever anything important happened in an *aul*. On foot or on horseback, the *dutar* or *tyuiduk* covered with the skirt of his gown, his was a familiar figure in every *aul*. Refreshments were always waiting for him and there was never any lack of listeners. As the small talk would die down, the people would focus their attention on the *bakhshi* and ask him to sing for them. While

tuning his instrument, he would hold their attention with a story in which truth was often mixed with fantasy, while a witty word here and there kept them laughing. When the tuning was finally completed and the audience silent with expectation, the *bakhshi* began a song. It might be an excerpt from an ancient legend about Ger-Ogli or a poem by Makhtumkuli, Mollah-Nepes or Kemine. The people would listen with bated breath, appreciating the metre and memorizing every word. If the *bakhshi* forgot or jumbled a line there was always someone in the audience to prompt or correct him.

The names of the famous *bakhshis* lived long in the minds of the people. The Turkmen did not identify one period or another of their history with the names of rulers—shahs or emirs—as was the case in Khoresm or Bukhara, for Turkmenia was never a united kingdom with one ruler for all the tribes. The "chronology of singers and poets" replaced the "chronology of kings."

It is hard to overestimate the role played by the *bakhshis* in developing poetry and social consciousness in pre-revolutionary Turkmenia. These scholars of classical poetry and creators of folklore gave voice to the ideological and aesthetic aspirations of the broad masses.

The *aul* rulers fully appreciated the role of the *bakhshis* and tried to make the most of their popularity. By various means—bribery, promises, flattery, gifts and, sometimes, intimidation and threats—they endeavoured to influence the choice of songs and stories. Often they attained their goal, and the *bakhshis* they won over alternated ideologically and artistically valuable songs with songs glorying khans, serdars, and beys. Like the folklore of any other nation, Turkmen folklore is not uniform as far as its ideological and artistic value is concerned. Some of it is at variance with the vital interests of the people and even hostile to them. That was the result of the interference of the beys and other feudal lords.

The efforts of the enemies of the people to subordinate songs to their own purposes are excellently illustrated by what happened already in our day to a singer who later became famous as a people's poet of Soviet Turkmenia. This man was Durdi Klich who, though blind (he lost his sight in childhood), was widely known in Tashauz Region as a singer, musician, and story-teller.

When Djunaid-Khan, a *basmachi* leader, rose against Soviet power, he decided to enlist the services of the popular singer. He wanted Durdi Klich to stop praising the Communists and compose a song in his honour. In return for that his envoys promised Durdi Klich riches. But the singer, the son of a poor *dekhan*, unwaveringly took the side of the people from the moment the Revolution broke out and courageously eulogized the Soviet power.

Words failing, the *basmachi* leader resorted to force. He sent some of his men to seize Durdi.

"Are you going to compose songs against the Communists or not?" the bandits demanded.

Durdi Klich replied that his *dutar* never made and would not make a single sound to the detriment of the people.

Gifts were offered to the people's singer. He was beaten. But he remained adamant. Then he was thrown into a dungeon. The singer languished in a hole for 52 days, expecting to be executed at any time. In the end he managed to escape. He was helped by simple folk who knew his songs by heart. The most popular were *The Hut*, *Chigir*, *The Coat*, and *The Rider*, which were full of sympathy for the bitter lot of the poor people.

Durdi Klich appeared before the commander of the nearest Soviet Army unit and declared that his voice belonged to the army of the Soviets and that he would go wherever the Revolution ordered him. With units of the Soviet Army the blind singer went to Tashkent, Pishpek (Frunze), and Samarkand, and everywhere he sang his songs against the *basmachis*, glorifying the Soviet Army, the Communist Party, and the new, happy life of the Turkmen people.

There were *bakhshis* and *shahirs* who yielded to the promises of the *aul* rulers. They sold their talents for good food and rich gowns. Turkmen folklore includes tales shaming and deriding these mercenary singers and musicians.

If we had used the songs of these toadies of the beys to reconstruct the past history of the *auls*, the picture would have been untrue.

Happily, things that run against the vital interests of the people are not remembered long. Sooner or later, memory discards as

rubbish the promptings and teachings, that, because of the backwardness in the *auls*, were forced on the people by the Moslem dogmatists, mullahs and their masters—the beys—whose main concern was to safeguard the system that doomed the *aul* poor to eternal submission, to fate and to uncomplaining toil.

6

In old Turkmenia there were a few fountainheads of learning. Some of the *auls* had elementary schools—*mektebs*—in which the mullahs taught children for a fee that could be paid by only a few people. In his reminiscences, Chari Ashirov, a present-day Turkmen writer, poet, and translator, who attended a *mekteb*, gives a description of what these schools were like and what was taught in them.

"The mullah," he wrote, "would take up a book in the Arab language, which was foreign to us, and read it aloud.

"The pupils repeated everything the mullah read, word for word, without understanding what they were saying. I did not understand anything either, and wept. That was the *Haftiak*, the elementary textbook of the Moslem school, which was made up solely of excerpts from the Koran. When we had learned the *Haftiak* by heart, still not understanding a single word, we passed on to the Koran. As in the case of the *Haftiak*, the mullah read the Koran to us and we repeated and memorized every word in complete ignorance of what it meant. Then we took the book ourselves and, drawing upon our memory, tried to pick out the different words in a text that we had learned beforehand. That continued for a long time and after gazing at the Arab characters day after day with weary monotony I finally began to guess the rudiments of the Arab alphabet. The only book I could read was the one I knew by heart. The school course ended with readings of the poems of Navoi and one other ancient poet—Byadil. I spent several years studying them and learned many beautiful poems, but I knew nothing of geography, arithmetic, or the foundations of my own Turkmen language. I did not know a word of Russian. . . ."

After finishing the *mekteb*, the sons of prosperous parents received a "higher" education at the *medreses* in Bukhara or Khiva. There they were taught the rudiments of geography, mathematics, and history; naturally, these subjects were expounded in full accord with the tenets of Islam.

The recollections of Sadriddin Aini, the well-known Tajik writer, who studied at the Bukhara *medres* at the turn of the 20th century, contain a list of the subjects taught in higher Moslem schools.

"At the Bukhara *medres*," Aini wrote, "we studied the Arab language (morphology and syntax), logic, rhetoric, natural sciences from the theological point of view, rules of lavabo, fasting, burial, making a pilgrimage to Mecca, the order of buying and selling, the rules of owning and freeing slaves, the rules of marriage and divorce, and other laws of the Sharia, a knowledge of which was necessary for religious or political activity....

"... a boy finishing an elementary school stood the chance of remaining illiterate."

At the beginning of the 20th century, these "semi-illiterate literates" made up the 0.7 per cent of the Turkmen population mentioned in the official tsarist statistics for the Transcaspian area as being able to read and write.

The Great October Socialist Revolution radically changed the situation. Numerous schools took the place of the few *medreses*. The Revolution gave birth to a national press. In the old days no newspapers were published in the Turkmen language. As a result, the process of shaping the Turkmen literary language could not be regarded as having been completed.

On November 15, 1917, the "Declaration of the Rights of the Peoples of Russia" was made public. Equality, mutual trust, and fraternal friendship came to form the basis of the relations between the peoples of the former Russian empire, before whom the Revolution threw open the doors to freedom, prosperity, and culture.

The *Turkmenistan*, a newspaper in the Turkmen language, began to come out in Ashkhabad in 1920. It had a circulation of 800. The publication of several other newspapers and the *Tokmak*, a journal

of literary and art satire which soon won a wide following, was started when Turkmenia became a Union Republic.

In those years, most of the population in the *auls* was still illiterate. But there was already an ever-growing number of people, mainly young men and women, who were finishing secondary and abolition of illiteracy schools and becoming the first Soviet activists in the *auls*. They enthusiastically propagated the new, Soviet order and the revolutionary reorganization of life. With every fresh delivery of the mail from the town they gathered the *dekhans* together and read the newspapers and magazines to them.

The political news carried by the newspapers and the satirical poems in the *Tokmak* were memorized by the listeners and, as was the case with folklore in former days, taken to the remotest corners of the Turkmen steppes.

Between the years 1923 and 1925, the *Tokmak* and the *Turkmenistan* printed the first poems on Soviet themes. These were written by young poets—Karaja Burunov, Berdi Kerbabayev, Mollah-Murta, and Yakub Nasirli—who must be regarded as the founders of the *written* Soviet literature of Turkmenia. The reason for the emphasis on the word written is because Soviet oral poetry, composed by the folk story-tellers and singers Durdi Klich, Ker-Mollah, and others, was already in existence when the first publications appeared in the Turkmen language.

The example set by the Russian working class and by advanced Russian science and art helped the Turkmen people to create their own national socialist culture.

In its first steps in science, literature, and art, the young Turkmen intelligentsia was guided and assisted by Russian scientists, writers, and theatrical workers.

Soviet readers were first acquainted with the achievements of Soviet Turkmen culture by a team of Russian writers, headed by Nikolai Tikhonov and Pyotr Pavlenko, that went to Turkmenia in 1930 on the initiative of Maxim Gorky.

By 1930 there were already 800 schools in the *auls* with an attendance of 25,000. Those years saw the implementation of an extremely important reform. The difficult Arab written language, which required long and painstaking study before it could be mastered, was super-

seded by a much simpler Latinized alphabet. A national Turkmen alphabet, based on the Russian alphabet, was introduced a few years later.

Turkmenia's first institution of higher learning was opened during the first five-year plan. In 1931, a pedagogical institute was founded in Ashkhabad. Former *aul* boy and girl shepherds and farm labourers entered a world of knowledge their fathers could never even dream of.

Taushan Esenova, a poetess and playwright, whose play *Shemshat* (*Daughter of a Millionaire*) has been staged in the theatres of Turkmenia and other Union Republics, gives the following description of the craving for knowledge that gripped the young people in the *auls* during the first years of collectivization:

"It was the beginning of a cultural revolution. Everyone who refused to regard the ancient Adat and the *Turkmenchilik* as the final and perfect solution of all the problems of life reached out for knowledge.

"I was only a little girl the year Central Asia was delimited and I could understand little of what was happening around me. When the first rumour about collective farms reached us, we were visited by a distant relative who had been to Moscow and even seen Lenin. He heard Lenin speak at one of the meetings. 'The sun of liberty is always accompanied by the light of knowledge,' were the words in which he interpreted to us what Lenin said about the cultural revolution. The words about the sun of liberty shedding rays of knowledge made a deep impression on me. I told my friends that it was their business if they wanted to remain in Kaakhka (we lived near the station of Kaakhka, Ashkhabad Region) and get married but that personally I wanted more than the sun in the heavens—I wanted to find the sun Lenin said was in books."

Taushan went to Ashkhabad. She was only 14 when she finished secondary school. The first ray from the sun of knowledge had penetrated into the girl's heart. She wanted other Turkmen girls to share this light and wrote her first poem which was printed in a newspaper in 1930.

Literacy is no longer the exception but the rule in the Turkmen S.S.R. Instead of the single pedagogical institute in Ashkhabad

there are now six institutions of higher learning—in Ashkhabad, Chardjou and Tashauz. The Turkmen Gorky State University was opened in Ashkhabad in 1950. In 1951, when the Turkmen Academy of Sciences began to function, Turkmenia had 55 native doctors and candidates of science. At the beginning of the 20th century there was one literate person to every 130 people in Turkmenia and no one had a higher education. Today there are many Turkmen experts, both men and women, in every branch of the national economy, science, and art.

7

Veli Mukhatov, an outstanding Turkmen composer, was born in the *aul* of Bagir, which is situated near the site where archaeologists are digging for the remains of the town of Nessa. Veli's father commanded respect among the people of his own and many neighbouring *auls*. Old Mukhat-aga played well on the *dutar* and the *gijak* and won repute as a musical critic and as the teacher of folk musicians.

Even famous *bakhshis* prized the advice of people like Mukhat-aga, who had spent a great deal of time pondering on the meaning of beauty in music.

The entire Mukhatov family was musically-minded. The elder son, Annamamed, became a prominent musician, but he died when he was still a young man. After Annamamed's death, Mukhat-aga said to little Veli: "Take your brother's place." Veli's sister and his second brother, Aka, played on the *dutar* and other instruments. Veli, too, would probably have become an *aul bakhshi* if it had not been for the October Revolution.

The *aul* of Bagir is only some eight miles from Ashkhabad, a distance that is not too great for tireless boy's feet. Veli loved to visit Ashkhabad in spite of the fact that his work at the collective farm did not leave him much spare time. One day as he was walking past the music school in Pushkin Street, he heard sounds that made him stop in wonder. "What is this music?" he asked himself. "Where is it coming from? What instrument is making it?" He entered the wicket-gate, but was stopped by the headmaster who asked

him what he wanted. "I want to listen to that music," Veli replied.

From that moment his life took a course he never even hoped for. The Soviet music school hospitably opened its doors to him. Veli studied music first in Ashkhabad and then at the Conservatoire in Moscow.

At the Conservatoire, Veli made his first timid attempts to translate into the language of melodies the feelings filling his heart.

During the Second World War, Veli Mukhatov was in active service. He was recalled to Ashkhabad after the bitter battles for the Donbas. In taking leave of his brother-soldiers he promised that he would write songs and music that would tell the world of their unforgettable experiences in the battles for the Motherland. That was how the *Victory Cantata* was born.

When the war ended, Veli Mukhatov returned to the Moscow Conservatoire to complete his education.

His first major symphonic work, *The Turkmen Suite*, brought him recognition and fame. In his diploma thesis—a symphonic poem entitled *My Country*, he showed his ability to harmonize national Turkmen motifs with the achievements of Russian classical and Soviet music. The works of the Turkmen composer are being rendered in Moscow, Leningrad, and Kiev by the country's leading conductors, and at the youth festival in Bucharest they won the acclaim of representatives of all the peoples in the world.

Veli Mukhatov is the author of the Turkmen national anthem. In collaboration with composer A. Shaposhnikov, he wrote the opera *Kemine and the Judge.*

At the beginning of the fifth five-year plan, the Turkmen republic had over 40 research institutions and establishments, where men and women from the *auls* are working for the weal of their country side by side with their Russian teachers. These are people for whom, to use the words of Taushan Esenova, "the rays from the sun of liberty brought the light of knowledge."

The opening in 1951 of the Turkmen Academy of Sciences was a great cultural event in Soviet Turkmenistan. Virtually the entire population of the republic took part in the festivities. The new

centre of scientific thought received greetings from workers at the oilfields, the fishermen of the Caspian, cotton-growers, students, school children, and numerous representatives of the growing army of Turkmen intellectuals.

The following is an excerpt from the greetings sent by Khalmurad Karamuradov, a team leader at the Voroshilov Cotton-Growing Collective Farm, Mari Region.

"When I was a boy I saw a man, who was bitten by a mad dog, being treated in our village. The *tabib* (sorcerer) stood on two poles that had been driven into the ground and whispered incantations, while the 'patient,' deep in prayer, passed slowly between the poles. Of course, that did not help. He died. In our village we had only two or three people who could read and write. Most of us had trachoma. In the evenings, the only light in our smoke-blackened *kibitkas* came from a dimly flickering wick that was fed with sheep's fat. Now there isn't a child over seven or eight who cannot read and write. Even such a patriarch as Durdiklich Nurmukhamedov has learned to read and has become a frequent visitor at the reading-room. Our collective farm has an excellent hospital and a medical centre where the doctor is Muruk Gavakov, one of our fellow-villagers. There is a secondary school opposite the collective-farm office. We all have electricity and wireless sets.

"Something I noticed recently is typical of the times. When the first cotton-cleaner, which completely mechanized one of the most difficult processes in the work of the cotton-grower, arrived at our farm, the collective farmers were not very surprised. They were quite confident that such a machine would be designed by Soviet engineers and were expecting it. The collective farmers are placing their hopes on Soviet science, believe in it and are demanding more and more from it. They attend courses to improve their knowledge of agricultural science, which they know far better than many agronomists did 20 or 30 years ago. We, collective farmers, welcome the opening of the Turkmen Academy of Sciences with all our hearts. This is striking evidence of the progress of our people, who, in Soviet years, have covered the tremendous distance from the hoe to the harvester-combine and aeroplane, from the miserable *medres*, which

only a selected few could attend, to colleges, universities, and their own Academy."

When Karamuradov said that the Turkmen collective farmers know as much about agronomy as many agronomists did 20 or 30 years ago, he was not giving himself airs or boasting.

Some of the big collective farms have lecturing bureaus that invite experts from the capital. One of the first of these bureaus was set up in the *aul* of Bagir. The manager, who is at the same time a teacher at the local school, says: "We have more than 60 students and none of them ever miss a lecture and all are very serious about their studies."

Many young men and women from the *auls* who received their education during Soviet years have chosen to become scientists. In 1952, the number of students in Turkmen institutions of higher learning was 60 to every 9,000 people in the Republic. That is almost twice as many as in France, five times as many as in Turkey or Egypt, and ten times as many as in neighbouring Iran.

The number of doctors and masters of science has risen to 150.

Some 30 years ago there was only one newspaper with a circulation of only 800. In 1951, the republic already had 63 newspapers. During the first year of the first five-year plan only 12 books were published in the Turkmen language, but by 1946 the number of books published was 3,873 with editions totalling 26 million copies. These include translations of the works of the founders of Marxism-Leninism, translations of books by Pushkin, Krylov, Tolstoi, Chekhov, Gorky, and the best modern Russian writers, and original works by Turkmen authors—writers Nurmurad Sarikhanov, Ata Kaushutov, Berdi Kerbabayev, Khaji Ismailov, poets Kara Seitliev, D. Khaldurdi, Taushan Esenova, Pomma Nurberdiyev, Rakhmet Seidov, Ata Salikh and others. Turkmen literature is taking an honourable place in the same rank with other fraternal branches of the multi-national Soviet literature. The following figures show the popularity of books in the republic: there are more than 1,000 libraries with a stock of 2,800,000 books, 50 houses of culture, 102 city clubs, and 520 *kibitka*-reading-rooms.

The *kibitka* we have just entered near the ruins of Annau is one of the reading-rooms that travel in the desert from one collective

stock-breeding farm to another. That is why it needs a camel. The woman in the red national dress is the librarian. She is a post-graduate student at Ashkhabad University and a linguist by profession.

The job interests her because it gives her an opportunity to study a dialect spoken deep in the Kara Kum. All that now remains is to ask the librarian to forgive us for disturbing her during her hour of leisure, and to return to Ashkhabad in order to board the train that will take us eastwards through the deserts and oases to Tedzhen and Murghab, then across the southeastern part of the Kara Kum to the banks of the Amu-Darya, and, farther, to Tashauz.

10—878

# Chapter I

1

SOUTHEAST OF ASHKHABAD, the train continues its journey along the Kopet-Dag foothills. The Akhal-Tekke Oasis ends abruptly some tens of miles beyond the city, giving way to the desert with its seemingly withered shrubs on either side of the railway. "This, at last, is the Kara Kum Desert I've been hearing so much about," the traveller will say to himself. But the sand-dunes become smaller and once again signs of life are seen in the direction of the mountains.

After passing the railway station of Gyaurs, the traveller sights a patch of greenery crawling up to the railway line from a distant ravine. The trees look black against the background formed by the mountains.

This is the so-called Atek Oasis, or simply Atek as it is better known.

The settlement of Kaakhka, which is famous for its vineyards and orchards and lies close to the railway station of the same name, was once the centre of the oasis.

The name has a curious origin.

The word *kaakhka* actually means father, but it is pronounced somewhat differently from the Turkmen word for father and sounds like an interjection which may be translated as "ha-ha-ha."

Legend tells us that a few thousand years ago this was the site of a town with a low clay wall around it. When Alexander the Great invaded Central Asia, his army laid siege to the town. The inhabitants were poorly armed and there were not many warriors among

them. They had only two alternatives: either to perish in battle or to resort to cunning. They chose the latter course. Taking the advice of a quick-witted fellow-townsman, they lined the outer side of the town wall with crooked mirrors in which all images took on funny or monstrous shapes.

Approaching the wall, the Greeks burst out laughing when they saw their ridiculous reflections and continued on their way without harming the town.

The town became known as Ha-ha-ha, i.e., Kaakhka.

That is a fable, of course. But fables usually have a tiny grain of truth in them. In this humorous legend the grain of truth is probably in the mirrors. Why are they mentioned? Ashkhabad is noted for its glass works. But the wealth of quartz sand in the Kopet-Dags was utilized long before these works came into existence. It is quite likely that in ancient times (it could have happened long after the invasion of the hosts of Alexander the Great, for Central Asian legends traditionally link Alexander the Great with many events that occurred before or after him) the people of Kaakhka started to make mirrors and that nothing came of their enterprise. Since Turkmenian folklore is inherently satirical this legend was probably invented to ridicule them.

Like Akhal, Atek was settled in the distant past. There are traces of ancient structures throughout its length, from Gyaurs to Dushak. Parts of a clay wall have survived along some sections north of the railway—they can be seen at Kaushut Station and at Dushak. It is difficult to establish the date this wall was built and the purpose it served. Archaeologists differ on this point. Possibly, it was erected to guard the cultivated lands of Atek against raids by nomads. Another possibility is that it served as a dam. There are no big rivers in Atek. The crops are fed by streams, *kyarizes* and springs. In spring-time, these streams carry rain-water and melted snow past the orchards and fields into the desert. Perhaps the inhabitants of Atek built walls in an attempt to regulate the flow of spring waters. That was practised in some areas in Turkmenia.

The fact that there are remains of similar walls in the delta of the Atrek provides some ground for this conjecture. Near Kaakhka, archaeologists brought to light clay pipelines, which in ancient times

carried water to the fairly big city of Haveran, which is now non-existent.

In any case, whatever the purpose of the wall in the northern part of Atek, its very presence shows that this oasis once teemed with life and activity.

2

The delta of the River Tedzhen is close to the eastern outskirts of Atek.

The Tedzhen, which is 700 miles long, has its source in Afghanistan, in the spurs of the Hindu Kush, and cuts across three countries, its lower reaches flowing through Soviet territory.

The traveller who expects to see a great waterway will be disappointed to find that the famous Tedzhen is only a narrow, muddy river flowing along a flat bed between low-lying, clayey banks. Only a third of its waters reach Soviet territory; the other two-thirds are left in the fields of Iran and Afghanistan. That third of the Tedzhen's waters is the source of irrigation and, consequently, of life for the collective farms of the Tedzhen Oasis.

In the Tedzhen Valley only a small part of the arable land could be used under cotton but even these tiny plantations never had all the moisture they needed. In the pre-war years, drought used to destroy about a quarter of the cotton sown in the Tedzhen delta.

It would have been a waste of time complaining about the drought if the river had been dry. But the fact of the matter is that the Tedzhen has, or, to be more exact, usually has, all the water necessary for irrigation.

But the water cannot be used properly because in spring it rushes down at a terrific speed and the floods are short-lived.

In March and April, the river carries so much water that if it did so in the summer a vast area could be irrigated. There have been years when the Tedzhen overflowed its banks, destroying houses, and washing away the crops.

In April, 1939, floods destroyed a large part of the town and a few miles of the railway. One can imagine how much water flowed wastefully across the valley and disappeared in the sands.

The construction of the Tedzhen reservoir was started in 1940. The site chosen for the reservoir is in a valley south of the railway, near the ruins of Fort Kari-Kala, where the river flows through a deep and narrow gully.

Part of the project was completed before the outbreak of the Second World War. Work was stopped for the duration of the war and was resumed in May, 1945. The reservoir was finished in 1950, substantially increasing the area under cotton in this droughty region.

However, there is still not enough water to irrigate all the arable land in the delta. The inference, therefore, is that besides the reservoir, something more effective must be done in order to solve the water problem.

The solution has been found. The first section of the Kara Kum Canal will carry water to the Murghab Oasis, and the second section will give the fields in the Tedzhen Oasis an ample supply of moisture.

There is a plan to build another reservoir on the Tedzhen. That will eliminate the threat of catastrophic floods and facilitate the utilization of the river's water resources in the newly developed irrigated lands in the old delta.

3

The valley of the Murghab is about 75 miles to the east of the Tedzhen. The plain between the two rivers is one of the least visited areas in the Soviet Union and very little is known about it.

In the north, along the railway line, this plain, which separates the Kopet-Dag foothills from the Kara Kum, is a semi-desert with sand-dunes, *takyrs*, dried up beds of rapid rain-water streams, rubble and stones swept down from the mountains by these streams, sparsely growing shrubs and trees, and tortoises, countless numbers of which crawl about the sand in the spring and may easily be mistaken for round, flat-topped stones.

After the heavy spring downpours, the plain is covered with vegetation. In March and April, and, sometimes, May, if the spring is protracted, this semi-desert which stands guard, as it were, over the cultivated fields in the Kopet-Dag foothills, looks like a flowering

who drove the sheep and camels of the Mari and Tedzhen beys to the pastures in this area.

Pistachio groves represent the chief wealth in Badkhyz. These are distributed about the slopes of the hills, forming what geography textbooks call the "pistachio woods of Turkmenistan."

In Badkhyz the pistachio groves occupy a total of about 60,000 acres. This is much more than the area of the famous pistachio plantations in Sicily, which is regarded as the world's principal supplier of the pistachio nut.

## Chapter II

### 1

The fine-fibre cotton grown in the Murghab Valley is famous throughout the country. Even school children, who have never seen cotton in its natural surroundings, know that the country's textile mills get their cotton fibre chiefly from the Ferghana Valley in Uzbekistan, the Vakhsh Valley in Tajikistan, the lower reaches of the Amu-Darya and the Murghab Oasis in Turkmenia.

The collective farms of Central Asia derive most of their wealth from cotton. In order to ripen, the plant needs a long, frostless period with abundant sunlight in the summer. These are the features of the climate in the Uzbek, Tajik and Turkmen republics.

Cotton can be grown throughout the length and breadth of Central Asia wherever the land is irrigated. In recent years, Soviet selectionists and Michurinist-agronomists have started to plant cotton much farther to the north. But fine-fibre cotton needs special conditions. As we have already said, the frostless period must be long and the mean summer temperature high. In Turkmenia, these conditions exist in Mari Region and in the southern districts of Chardjou Region.

Egypt and California are noted as the driest and sunniest places in the world. The Murghab Oasis has every reason to vie for that honour. The summer temperature in the delta of the Murghab is higher than in the Nile delta (in Bairam-Ali the mean daily temperature during the summer is 85°F), the number of cloudless days greater (200 per year) and the air as dry.

Throughout the ages, these features of the climate allowed people to regard the oasis on the River Murghab as a natural home for the cotton plant. That explains why so much pains have been taken to make the utmost use of the waters of the Murghab.

2

The Murghab is almost as long and deep as the Tedzhen. Approximately 700 miles lie between the Sefidkuh Hills in Afghanistan, where the river has its sources, and the collective-farm fields in the northern districts of Mari Region, where the delta ends.

There is no difference between the amount of water brought down annually by the two rivers, while the soil and the climate in the valleys of the Murghab and the Tedzhen in Turkmenia are likewise identical.

However, from the economic point of view, the Murghab is much more important than the Tedzhen has been up to recent years.

Before entering Soviet Turkmenia, the Tedzhen leaves a considerable portion of its waters in the Herat Valley in Afghanistan.

The Murghab, on the other hand, rushes unchecked down the mountain ravines from its source in Afghanistan, where every little tributary adds to its strength. The only fields in Afghanistan that are irrigated by the Murghab are in a place adjoining the point where the river crosses into Soviet territory.

In the Soviet Union, the Murghab has several tributaries, of which the Kushk, that gave its name to the frontier settlement of Kushka, is the most important. The Tedzhen has no tributaries in the Soviet Union and, consequently, its waters are not replenished.

Finally, on the Murghab there are more signs of human culture than on the Tedzhen. In the course of centuries, in addition to small weirs that conducted the water to close-lying fields, the people inhabiting the Murghab Valley built huge dams, some of which, the Sultan-Bent Dam, for instance, were considered feats of engineering.

The Lower Murghab may serve as a model of a river which has been completely harnessed to serve the needs of man. People always had to surmount tremendous difficulties before they got obedience from a river and that holds true in our day as well.

A feature of the Murghab is that its waters are very muddy. The river is transparent only along its uppermost reaches where it gets its waters from melting glaciers, but as soon as it leaves the ravine it becomes muddy from the huge amount of silt that it takes up. The loess soil and the sand in the valleys through which the river flows are easily washed away.

In the river every litre of water contains 2.4 grams of silt. The silt gradually settles on the bed and the greatest concentration is in the reservoirs.

The silt carried by the Murghab to its delta is at once useful and harmful. It is useful because when it reaches the fields, it increases the soil's fertility and serves as a natural fertilizer. It improves the purely structural properties of the soil, and the people of the Murghab Oasis frequently channeled the river's waters to the desert in order to flood the land between the *barkhans* and thus extend the crop area. A film of silt, thick enough to let the roots of plants sink in it, remains on the flooded plots after the water is drained.

From that viewpoint, therefore, the Murghab silt may be considered useful, in spite of the fact that for its chemical properties it is less valuable than the silt in the Amu-Darya. The large salt content decreases its value. The reason for this high salt content is that two of the Murghab's biggest tributaries, the Kashan and the Kushk, are perhaps the saltiest rivers in the Soviet Union. Nevertheless, the Murghab silt is a good fertilizer.

The harm is that tremendous quantities of silt accumulate in the reservoirs, which hold many scores of millions of cubic feet of water, thus clogging them up and nullifying man's creative labour.

In 1910, the site of an ancient dam on the Murghab was chosen for a new dam and for the Sultan-Bent reservoir. Within only 22 years the reservoir was completely silted up and rendered useless. 1910 also witnessed the construction of the Iolotan reservoir (11 miles below Sultan-Bent) with a capacity of 2,500 million cubic feet. At present its capacity has dropped to almost half.

In addition to clogging reservoirs, silt settles on the beds of *ariks* and canals and obstructs the passage of water. In order to ensure

the normal irrigation of one acre of land, 140 cubic feet of silt have to be dredged out of the *ariks* annually.

Dredging of the irrigation system, work that is called *hoshar* locally, has always been one of the most urgent and necessary jobs on the farms in the Murghab Valley. It was the curse of the farmers and a yoke around the necks of the toiling *dekhans*.

The rich people and the beys naturally never lent a hand. They enjoyed the fruits of other people's labour and their fields were the first to get water from the dredged *ariks*.

Part of the silt dredged out of the *ariks* was used to fertilize the fields, the rest remaining on the banks and gradually building them up to a height that made further manual dredging impossible. The result was that the old *ariks* would be abandoned and new ones dug. Until recently, the Murghab Oasis was blocked up with high, dry banks running along active and abandoned *ariks*.

With muddy brown water flowing between them, these banks were one of the features of the Murghab landscape. They are overgrown with sedge and long, dry grasses. Shadows are cast on the water in the *ariks* by English elms, poplars, mulberry-trees, oleasters, and other trees that grow in Central Asia wherever the soil is irrigated. Low earthworks called *chylyams* divide the sown fields into even flat lots.

These lots were filled with water and had to be flattened regularly. In the past, that was another back-breaking job for the Turkmen cotton-grower. If the lots were not flat, the water released from the *ariks* accumulated in the low places, leaving the plants on sloping or high ground to wither away. Cotton cannot be grown on declivities or hills such as are common in the central Russian belt. The Murghab Oasis, like the oases of Tedzhen, Amu-Darya, Serakhs, and Tashauz, is a big stretch of flat land criss-crossed by *chylyams* and the high banks of the *ariks*.

For thousands of years, *hoshar* was one of the most onerous duties of the cotton-grower throughout Central Asia. The *arik* system was evidence of man's triumph over nature, but *hoshar* was a reminder that nature did not consider itself beaten and in return for the work it did demanded tribute in the shape of exhausting labour.

3

The Murghab Valley is one of the most ancient settled lands in Asia. From time immemorial the people living in it have been growing cotton in addition to other agricultural crops.

Two thousand years ago, Chinese geographers wrote that in Turkestan the fields are planted to "vegetable wool." Chinese merchants placed a high value on the textiles of Samarkand and Merv.

Merv (Mari in Turkmenian), the chief town in the Murghab Valley, was for many centuries one of the richest towns of the Ancient East.

The exact date of its foundation is not known. The *Zend-Avesta*, the sacred Zoroastrian writings, mentions Merv as an important town.

Ancient Chinese chronicles speak of Merv (Mu-lu in Chinese) as the most important town on the route between China and Iran.

Merv is mentioned in the Nestorian chronicles. From them we learn that there was a Christian episcopate in a town on the River Murghab already at the beginning of the 4th century.

In the 7th century, Merv was seized by the Arabs. The Arab chronicles speak of the numerous settlements around Merv: "the population was as dense as the raindrops in April."

The irrigation system on the Murghab, which provided the town and its suburbs with water, was held up as an example. Arab technicians from Mecca went to Merv to learn how to build dams and canals.

Merv was an important cultural centre. The town had an abundance of water and many orchards, mosques and mausoleums. The markets were always filled with people speaking different languages. They came from all parts of the world: from Rus, China, India, Transoxania and Persia. The population numbered several hundred thousand and there were libraries, baths, schools, palaces and caravanserais. It was a town where people could buy everything they wanted, whether it was made in the East or West, and learn about all that was happening in the world.

But the day came when all this became a memory. The bloodthirsty Genghiz Khan, who set out to conquer the world, sent his son, Tuli

Khan, to capture Merv. In 1221, the hordes of the conqueror burst into the town after destroying the dam that supplied Merv with water. The entire population was slaughtered (some sources place the number at 3 million, others at 700,000) and all the buildings were destroyed. Sultan Sanjar's tomb alone survived, perhaps, because the invaders did not have the technical means with which to level this huge building with the ground.

Merv ceased to exist as a major centre of the ancient world. In the 15th century, Shah Rukh, one of Tamerlane's sons, restored the dam across the Murghab and built a new Merv. But the restored town was only a shadow of the Merv of the days when it was a caliphate, or when it was ruled by Sultan Sanjar. A hundred years later, the Uzbek Khan Abdullah made a new attempt to recapture the glory of Merv. But even during his reign Merv remained a small town of the Bukhara emirate and was much smaller and poorer than Bukhara, Samarkand or Khiva.

In 1807, there were only 500 families in the town, but even they soon left and settled elsewhere. Towards the middle of the 19th century, the Tekkes and Bukharites built two small forts in the region of the Murghab: one on the site of the present town of Mari and the other 14 miles east of it, near the ruins of the ancient Merv. The second fort, which was built in 1840, was called Bairam-Ali.

## Chapter III

### 1

Central Asian cotton was one of the attractions that drew Russian capital to the East.

In the course of many centuries, the relations between Russia and the peoples of Central Asia developed peacefully. Russian merchants sought to establish trade connections with Bukhara, Khiva and the Khanate of Kokand. The caravan paths between Tashkent and Orenburg were among the busiest trade routes linking Europe with Central Asia.

Important changes began in the Transcaspian area after it became part of Russia. Great numbers of enterprising businessmen, who had heard of the fertility of that land, followed in the wake of the army and tsarist administration.

A kind of cotton fever gripped Turkmenia as it did the other regions of Central Asia. Cotton interested everybody, even people like officials, army officers, and clergymen, who knew nothing at all about agriculture or irrigation. Many of the new planters were simply adventurers out to make easy fortunes. Most of them had neither the knowledge nor the experience nor the desire to run the business on a rational basis. All the newly-baked cotton planters wanted was to get rich at all costs and as quickly as possible.

But riches did not come at once, nor did they come to everybody. Ignorance of local conditions led to fatal mistakes that often ended in complete ruin.

One of these mistakes was the wrong choice of the variety of cotton. The local Mari variety had degenerated. Its yield was small and the fibre was short and rough. A new variety was needed, but nobody could tell which. The *Sea-Island* variety, which was fashionable in those days, was imported from America. Huge areas were planted to it, but the crop failed. It turned out that in order to ripen, the *Sea-Island* plant needed other climatic conditions than those prevailing in the Murghab Valley.

Later, a selection centre was set up in the settlement of Bairam-Ali which finally determined the variety of cotton that could be grown profitably in the Transcaspian.

Those years were marked by the growth of the district town of Merv (Mari) in the delta of the Murghab near the ruins of ancient Merv, and of Bairam-Ali, which was then the centre of the so-called "Murghab Crown Estate."

Today these two towns are the major inhabited points of the Murghab Oasis: Mari is a regional centre and one of the biggest towns of Turkmenia; Bairam-Ali is a large industrial town and a popular holiday resort (it has the Soviet Union's only climatic sanatorium for people with kidney trouble).

2

The Mari (Merv) that was inherited by the Turkmen Soviet Socialist Republic from tsarist Russia was in an unenviable state. Its appearance and utilities were in discord with the rich lands around it and with the world-wide renown of its historical name.

In their haste to squeeze profits out of the Murghab Valley, the cotton planters did not regard the town they were building as a place of permanent residence. The most urgent sanitary needs of the population, to say nothing of their aesthetic requirements, were disregarded. For the planters and speculators, Mari with its offices, purchasing centres, and warehouses was only a temporary stop, something like an inn, on the way to great riches.

There were no handsome, capital buildings. The streets were lined with single-storey, flat-roofed brick houses that hid behind dust-laden trees. Mari was one of the dustiest and hottest towns of Central Asia. The streets were not paved. The roadways were filled with hard, dry clay (silt) which quickly turned to dust under the feet of pedestrians or the hooves of horses, camels and asses, and hung in the air for hours. The dust raised by a caravan or a carriage was so thick that it hid one end of a street from the other.

In contrast to the white houses of Ashkhabad, the houses in Mari were grey or brown, depending on the colour of the bricks used. That was the colour of the water in the *ariks* and in the river, which ran through the middle of the town. The river reaches Mari after a journey of 793 miles during which it loses most of the water it receives from the Parapamiz glaciers and from its tributaries.

The planters and merchants gradually became wealthier, but that hardly affected the town's appearance. Mari grew as a place where the representatives of trading firms lived unwillingly and where, because of its importance as a district centre, tsarist officials were compelled to settle. The inhabitants planted trees along the streets, dug *ariks*, and built low clay walls around their gardens. That was as far as town improvements went.

Nevertheless, the town continued to expand. The "Murghab Crown Estate" was instituted in the lower reaches of the Murghab in 1887.

Two big dams were thrown across the river. The area under cotton was enlarged and the town's trade increased substantially.

Mari was on the trade route between Russia and Bukhara, Persia, and Afghanistan. Fabulous wealth began to accumulate in the hands of some of the planters.

The local chiefs—the Turkmen beys and the Bukhara merchants—were as ferociously greedy and skilful at lining their pockets as the newcomers. They entangled the *dekhans*, their fellow-tribesmen, in loans with an exorbitantly high rate of interest. Cotton brokers became rich men in a few years. Elderly collective farmers recollect with curses the name of the money-lender Mirkamil Mumishbayev, who made a fortune of 14 million rubles on the tears of the cotton-growers.

Mari's expansion was largely due to the building in 1898 of a branch line linking the Central Asian Railway with the southernmost point of the Transcaspian and of the Russian State in general—the settlement and fort of Kushka.

The town became a railway junction with large railway workshops, which were second only to those in Kizyl-Arvat.

Right until the October Revolution Mari remained a hot, dusty and malaria-infested town of officials, planters, merchants and new rich and ruined businessmen. It was a town where the solidarity of the railway workers strengthened. Most of them came from Russia, but their number was steadily augmented by the *dekhans* who could no longer bear their wretched poverty.

3

For a short period during the Civil War, Mari was held by the Whiteguards. In Mari, they shot P. Poltoratsky, a staunch revolutionary of Central Asia and the Commissar of Labour of the Turkestan Republic.

Poltoratsky's father was a railway worker at the station of Kagan on the Central Asian Railway. The town of Kagan or New Bukhara, as it was called before the Revolution, was quite a big industrial and trading centre of Turkestan. Besides the engine-repair shops, it had cotton-cleaning plants, numerous transport and trade agencies, and

bank branch offices. Kagan was situated close to Old Bukhara, the citadel of eastern medievalism and the capital of the Bukhara Khanate. As a boy, Poltoratsky witnessed all the horrors of ancient eastern despotism and learned the meaning of the new, capitalist yoke which lay heavily on the toiling people, who had to sell their labour for pitiful returns.

Poltoratsky interpreted the news of the tsar's overthrow as the harbinger of the inevitable, imminent fall of eastern despotism and of the despotism of capital. He regarded Lenin's April Theses as a programme of life. He went to Petrograd as a deputy to the First All-Russian Congress of Soviets and joined the Communist Party.

Upon his return to Central Asia at the beginning of October, 1917, he fought in the streets of Tashkent against the counter-revolutionary troops of General Korovichenko and Colonel Cherkez. He was the founder and editor of *Sovietsky Turkestan*, the first Soviet newspaper in Tashkent. At the Third Congress of Soviets of the Turkestan Republic, he was elected Commissar of Labour and the head of the Council of National Economy of Soviet Turkestan.

News of the Socialist-Revolutionary uprising in Ashkhabad arrived in Tashkent in June, 1918, and Poltoratsky was sent to that city at the head of a special commission. He broke through a Whiteguard cordon at Kagan and reached Chardjou. In Chardjou there was no exact information about what had happened in Ashkhabad. Poltoratsky telephoned Funtikov, the Social-Revolutionary leader in the Transcaspian, and bluntly asked him about the situation in Ashkhabad.

Funtikov evaded the question, treacherously inviting Poltoratsky to Ashkhabad in order to see for himself that "everything was in order."

Poltoratsky left Chardjou for Ashkhabad and Funtikov immediately sent a strong Whiteguard force to intercept him at Mari.

On July 21, the Socialist-Revolutionary bandits seized Poltoratsky at the post office in Mari. He had gone there to telephone Tashkent and ask for reinforcements "in view of the disturbing situation in the town."

Poltoratsky was shot that same night. A few hours before his execution, he wrote a letter to the workers of Mari and Ashkhabad. Here it is:

"I have been sentenced to be shot. Soon I shall breathe no more. I have a few hours at my disposal and before I die, dear comrades, I want to use this precious time to write a message to you.

"Comrade workers! I am confident that after my death at the hands of the White gang my place will be taken by other, stronger and stauncher comrades, who will engage in and carry on the struggle we began for the full emancipation of the working people from the capitalist yoke.

"But in leaving you, comrades, the only thing that I, as a worker, am afraid of is that my untimely death might be interpreted as a sign pointing to a temporary downfall, a temporary loss of the conquests made for the working class by the October Revolution. That will be a heavy blow not only to the proletariat of Turkestan but also the cause of the world revolution.

"Death is not frightening nor is it very painful, but it is agonizing to feel that a part of democracy, a part of the working people has fallen under the influence of the Whiteguards and is digging its own grave, committing a crime. . . ."

After this calm and courageous beginning, Poltoratsky goes on passionately to appeal to the workers to question the words of the Socialist-Revolutionary trouble-makers who were screening themselves behind revolutionary slogans:

"Never before has the working class been deceived so cunningly or so shamelessly. Unable to smash the proletariat in an open, fair fight, the enemies of the working class are endeavouring to get the workers to destroy themselves. They are telling you that they are fighting individuals and not Soviet power. That is a brazen lie! Do not believe it! The dregs of society—officers, bandits, various Ezizkhans, and the emir of Bukhara—are rearing their heads.

"Comrade workers!

"... Do not yield to the counter-revolution, otherwise the situation will be very difficult and will require many more sacrifices. Follow the example of your brother-workers in Orenburg. They have been striking for two months already and the nightmarish, criminal counter-revolution has not received a single engine or a single man from them. Come forward boldly in serried ranks, in defence of your interests!

"Brand everybody who is undermining the Revolution!

*"P. Poltoratsky."*

Saying what he did not have the opportunity of saying personally to the workers of Mari and Ashkhabad, he finished his letter with the following simple, moving words:

"Well, comrades, I think this is all I wanted to tell you. I know you will not let me down.

"I am leaving you forever with my mind at peace, even though I am doing it against my volition.

*"P. Poltoratsky, prisoner condemned to death.*
*"Midnight, July 21, 1918."*

At dawn, the courageous Communist was led out of the prison and shot at one of the clay walls on the town's outskirts.

The Turkmen people revere the memory of the valiant Russian worker who gave all his strength and his life to the cause of liberating the oppressed peoples of Central Asia.

Poltoratsky's name is borne by many of the republic's cultural and public establishments: schools, clubs and hospitals.

4

In Mari, the main thoroughfare bears the name of Poltoratsky. This street is not very interesting from the architectural point of view. In general, there are no imposing buildings in the town, the highest points being the heavy crowns of the old trees in the streets and gardens.

Mari stands in a flat plain. The railway and the river divide it into four parts. The railway intersects it from east to west, and the river—from north to south. Poltoratsky Street is about half a mile long in the southern part of the town, where it runs parallel with the railway. Its eastern end is at the bridge over the Murghab.

Vegetation is especially plentiful in the streets along the eastern bank of the river. There is an orchard or a vineyard around every dwelling and the Town Recreation Park is located here. The old Tekke market, the real business centre of pre-revolutionary Mari, is also in this part of the town. It comes to life only on Sundays, when collective farmers from the outlying *auls* bring their grapes, meat, onions, musk-melons, nuts, honey, fish, wool and other products.

The town has grown considerably in Soviet years. Many public buildings, principally schools and hospitals, have been erected. Many industrial enterprises have made their appearance. The principal streets have been paved with asphalt. Bus lines have been opened and a concrete bridge with cast-iron railings thrown across the Murghab. A monument has been raised to Poltoratsky in a little garden near the bridge. But most of the dwellings have remained unchanged.

A settlement for the builders of the Kara Kum Canal sprang up in the last two years on the town's eastern outskirts. In the Murghab Oasis, the waters of the Amu-Darya will double the crop area and usher in a new era for the town of Mari.

5

The Murghab Oasis forms a huge triangle in the delta of the River Murghab. With a certain degree of approximation the three points of this triangle are Mari in the west, Bairam-Ali in the east, and the little, verdant town of Iolotan, which is famous for its selection centre, in the south.

In Turkmenia, Tashauz is the only big town that can rival Mari for the number of surrounding settlements and villages. Krasnovodsk is hedged in by cliffs, the sea and the desert. Three miles beyond Ashkhabad there is a desert. The regional centre of Chardjou has the Amu-Darya on one side and the fields of two collective farms sepa-

rating it from the Kara Kum on the other. But around Mari there are settlements, cultivated fields, and orchards as far as the eye can see. The outlines of houses or the silhouettes of collective-farm orchards can be seen from any place in the Murghab Oasis.

In Mari Region, 90 per cent of the collective farms are situated in the triangle of the delta. One day is not enough to tour the oasis and to see all the collective farms. On the highways and roads in the delta the traveller comes across wooden arches bearing faded red streamers with the word "Welcome" on them. These arches were erected by the collective farms to mark off the boundary of their land. Here traffic is always busy, so much so that the highways seem to be continuations of the streets of Mari.

One of the streamers shows the beginning of the road to the Andreyev Collective Farm. Another, with the word "Welcome" in huge letters, shows the direction to the Shvernik Collective Farm in the middle of whose land towers the Sultan Sandjar Mausoleum, which can be seen for many miles around. A third streamer is blocked from view by a train of trucks carrying thick logs. Almost every truck one meets here has a load of building materials, principally timber. That explains to the traveller the reason why there are fewer houses in Mari than one would have liked to see. Almost all available materials are used to build collective-farm settlements. Quite recently, all the *auls* in the region were simply collections of felt *kibitkas*, but now every collective farm can boast of dwelling houses, schools, clubs and hospitals. That required an enormous effort because transportation had to be provided to carry building materials such as slate, nails and glass, while every piece of timber that was used had to be brought all the way from Siberia, the Urals or Arkhangelsk Region. Central Asia has no timber of its own.

There is one collective farm that the traveller cannot afford to pass by. This is the Bolshevik Kolkhoz, one of the leading, prosperous collective farms in Mari Region. Its prosperity is no cause for wonder because by 1953 the annual incomes of 97 per cent of the farms in the region began to run into millions of rubles. The interesting thing about it is that it is the oldest collective farm in the Turkmen S.S.R. It was founded in 1929, or more than a quarter of a century ago.

# Chapter IV

1

During the First World War, half of all the textiles produced in Russia were made from Central Asian cotton.

Production fell sharply during the Civil War. In 1922, Central Asia grew 30 times less cotton than in 1916. Only 17 of the 170 cotton-cleaning mills remained in operation. The *dekhans* began to sow wheat instead of cotton because hardly any grain was received from Russia. On the other hand, bales of pressed fibre, which were stranded here at the outbreak of the Revolution, lay about everywhere. In the years of the struggle against the *basmachis*, they could be seen at every railway station and every inhabited point where they were piled up to form barricades.

There was no front in Central Asia. Every settlement could expect a bandit raid at any time, and these cotton barricades were put up at the most vulnerable places. Barriers made of cotton bales replaced trenches. Placed along the sides of railway goods vans and carriages, these bales of cotton converted freight trains into armoured echelons, and any attack by the *basmachis* was met by a hail of lead that was showered on them from behind the cotton shelter.

In those years, the Soviet Government had to buy its raw cotton abroad.

The Soviet Army wiped out the Whiteguard bands and expelled the occupationist troops. In 1920, Vladimir Ilyich Lenin signed a decree which contained a detailed programme for the development of Soviet cotton-growing. Soviet selectionists were set the task of evolving native varieties of cotton.

The *basmachi* gangs disintegrated rapidly after the formation of national republics in Central Asia. Steps were taken to restore agriculture, particularly, cotton-growing, as quickly as possible.

At the beginning of the first five-year plan there were already 1,729,000 acres under cotton in the Central Asian republics; that exceeded the area under cotton in 1913. But great advances in Soviet cotton-growing became possible only during the years of collectivization.

2

The Bolshevik Kolkhoz with its gardens and cosy cottages has replaced the pre-revolutionary *aul* of Ersari-yab, which was nothing but a collection of drab, sooty *kibitkas*.

There were no gardens in the *aul*. Thirty-seven years ago, instead of extensive cotton fields there were tiny cultivated plots that gave the bare ground bordering the canal the appearance of having been patched.

In Ersari-yab, the land belonged to the tsar, forming part of the 287,000 acres set aside in the lower reaches of the Murghab as a "crown estate." The estate proper cultivated only a small portion of this land, leasing the greater part of it to the local beys, who sub-leased it to the poor peasants on enslaving terms. Although the *dekhans* loosened the soil, sowed and watered it, they surrendered the lion's share of the meagre harvest to the bey, remaining in debt all their lives.

In the *aul*, there was a man named Aga Yusup Ali, who enjoyed the respect of the poor peasants. The son of one of the bey's slaves, he was a slave himself when he was a boy.

Aga Yusup toiled day and night on land that did not belong to him, but poverty held him in its tenacious grip throughout the 40 years of his life before the Revolution.

When the *dekhans* belatedly learned of the tsar's overthrow, Aga Yusup at once realized that the same fate was imminent for the bey and for the poverty of the people. But the Civil War broke out and hardly anything changed in the life of the *aul*.

The expulsion of the occupationists was followed in 1925 by a land and water reform, whereby the land previously owned by the beys was turned over to the people. Aga Yusup received his share, too. The bey had receded into the past, but the land remained as dry and hard as ever. It cried for water and fertilizer, but the farmers continued using the implements of labour that their forefathers had used.

Aga Yusup was illiterate, but he gave heed to everything that was written in the newspapers in those years and to everything that was said by people who came from the town. He did not want to be a

poor peasant any longer. Hearing of the Party's call for the establishment of collective farms, Aga Yusup persuaded twenty poor peasants like himself to form a collective farm. That was in 1929. Turkmenia's first collective farm with a land area of 87 acres sprang into existence at Ersari-yab. The collective farm was named Bolshevik and Aga Yusup, then 50 years old, elected its chairman.

Over a quarter of a century had passed since then, but Hero of Socialist Labour and deputy to the Supreme Soviet of the U.S.S.R. Aga Yusup Ali, the collective farm's organizer, is still its chairman.

The farm reaped its first harvest in the autumn of 1929, taking in 700 lbs. of cotton per acre. That did not seem to be bad for a beginning, for in those years it was a rare farmer who harvested a bigger crop. But Aga Yusup, besides being tremendously energetic, was also far-sighted and firmly believed that with the help of the Soviet Government, people who pooled their efforts were capable of performing miracles. There was no use having a collective farm if its harvests were no bigger than those on individual farms, Aga Yusup told himself, and set out to raise the crop yield at all costs.

He became a frequent visitor in the town, where he sought the advice of agronomists and of people who were authorities on cotton-growing. On his farm he tried to introduce the advanced farming methods that he learned during these conversations. The attention that he paid to agronomical science was not long in bearing fruit. Already in 1930, the Bolshevik Kolkhoz raised a cotton harvest of 1,070 lbs. per acre, while next autumn they took in twice as much as in 1929.

The chairman and the collective farmers were greatly encouraged by their success. Other *dekhans* asked to be allowed to join and membership steadily increased. The Government helped the growing artel by sending it cultivators, harrows and ploughs—implements that were new to Ersari-yab.

In 1933, the cotton crop was 2,400 lbs. per acre. That won the Bolshevik Kolkhoz first place among the collective farms of Turkmenia. The assistance it received from the Government was commensurate with its successes. The first tractor made its appearance on the farm's fields, and its roar, which brought all the people in the *aul* running to see it, ushered in a new era in the life of the *dekhan.*

The collective farm continued to develop and the appearance of the old *aul* changed rapidly. As before, the people lived in *kibitkas*, but they already had electric light.

As the collective farm grew, more and more experience was accumulated by its chairman, who was indefatigable in his search for ways of increasing the harvest. He carefully distributed the various jobs on the farm, taking especial pains to choose the right people to do them. He had an exact account kept of the work done by each member of the farm and in this way made the farmers personally interested in their own labour. Somebody told him that in some places in America the cotton harvest was 2,670 lbs. per acre and he set out to exceed that figure.

In the autumn of 1934, when the harvest was calculated, the farmers saw that Aga Yusup's words about outpacing America were no idle dream. That year the farm picked 2,895 lbs. of cotton per acre, clipping 225 lbs. off the American record.

The farm's prosperity grew year by year and by 1935 its income reached nearly a million rubles. A crèche and a school were built and a *kibitka*-reading-room was opened. Wireless sets appeared in the homes. A laboratory was set up, and agronomists invited from Mari, Bairam-Ali and Iolotan to read lectures at the collective farm's newly-built laboratory. That year, in addition to houses for themselves, the collective farmers built a sanatorium. It as a handsome building in a shady park with a statue of Lenin in one of the squares.

Increasing numbers of people, first from the neighbourhood and later distant collective farms visited the Bolshevik Kolkhoz to see for themselves how the Murghab *dekhans* beat the American record.

By decision of the Central Committee of the Communist Party of Turkmenistan, the Bolshevik Kolkhoz was given a place on the All-Union Board of Honour.

In February, 1935, Aga Yusup went to Moscow for the first time. The occasion was the Second All-Union Congress of Collective-Farm Shock-Workers. He visited the Kremlin and the Lenin Mausoleum. Together with leading Soviet collective farmers, he helped to draft the Rules of the Agricultural Artel.

1940 was an outstanding year in the life of the collective farm Fine-fibre cotton was sown on a large scale for the first time, while

at the U.S.S.R. Agricultural Exhibition the farm was cited as one of the best in the country and its chairman was awarded the Little Gold Medal.

By that time, the farm already had its own brick factory, a garage for its machines, a library, baths, shower-rooms, poultry farms and cattlesheds with a special pool for bathing the livestock.

When the war broke out, 58 of the collective farmers joined the army. The people who remained at home worked in the fields with redoubled energy, considerably exceeding the war effort production target. They bought two fighter planes for the air force.

The Bolshevik Kolkhoz's land area increased tenfold after its amalgamation with other farms in the post-war years. In 1950, its income was nine million rubles, and in 1953—eleven million rubles.

The farm's successes are due to the increasing knowledge and experience of its members. From the moment the collective farm was organized, Aga Yusup did everything he could to stimulate interest in agronomy among the rank-and-file members. The story of the farm's progress is the story of the co-operation between science and collective farming.

While raising the harvest yield, the farm reduced its water expenditure by almost 30 per cent. That enabled it to extend its crop area without asking the state for additional water rations. The Iolotan Research Centre followed its example and halved the water allowance for its cotton fields.

The experience accumulated by the Bolshevik Kolkhoz over more than a quarter of a century is carefully studied by cotton experts in Turkmenia and other republics.

Visitors at the Bolshevik Kolkhoz include cotton-growers from Tajikistan and Uzbekistan as well as students from the agricultural institutes in Azerbaijan, Erevan and Kharkov. In his turn, Aga Yusup has made quite a few trips to Uzbekistan, Tajikistan and Azerbaijan as a member of a socialist emulation inspection team.

In 1953, the collective farmers sowed cotton on 1,395 of their 4,298 acres of arable land. Payment against each work-day unit was 28 rubles in cash and nine pounds of grain. Some families earned 60,000-70,000 rubles. That year the average cash income per family was 15,000-18,000 rubles.

# Chapter V

1

In the Murghab Valley, as almost everywhere else in Turkmenia, cotton plays a major role in the lives of the people.

The sowing season begins in March. By that time all the canals and *ariks* have to be dredged and the hydraulic structures on the river and trunk canals put in order. The sowing cannot be delayed, for cotton needs a long vegetative period in order to ripen. A week's delay sometimes has disastrous effects.

The sowing is followed by work in the fields—watering, weeding, fertilizing and topping; in the course of the summer, the fields are watered five or six times. Field work keeps the cotton-growers busy right up to the beginning of autumn, the time the crop is harvested.

The bolls do not open all together. That, of course, causes difficulties, for only the ripe cotton can be picked. The picker has to work fast and nimbly in order to avoid breaking the stems with unripe fibre. Usually the work starts at sunrise, as soon as the dew evaporates, but before that the pickers acquaint themselves with the field and place their sacks within convenient reach between the rows. Skilled workers pick as much as 220 lbs. of cotton per day. Most Turkmen pickers have set themselves a target of 20,000 lbs. per season.

In order to advance cotton-growing still further, scientists have tackled the task of mechanizing the heaviest work—dredging the canals and picking cotton. This task may now be considered as having been solved. Only fine-fibre cotton is hand-picked.

Powerful canal-diggers and suction dredges are now operating in the Murghab Valley and in all the other ancient oases of Central Asia. One big suction dredge does the work of 15,000 people.

Efforts to dredge canals with machines were started in Turkmenia back in 1929. Those were but the first steps and that year only a half of one per cent of the total volume of the work was done by machines, spades remaining the chief "mechanism."

However, in 1954, machines dredged 75 per cent of the canals and *ariks*. In the course of the sixth five-year plan, graders, suction

dredges, hydromonitors and bulldozers will be clearing silt out of nine-tenths of the republic's canals and irrigation ditches.

By dredging canals with machines, the republic's collective farms saved almost two million man-days in 1952 alone. This means a great deal to the collective farms, especially as there has always been a shortage of manpower in the cotton-growing areas.

Although it is not as difficult as dredging, manual cotton-picking, which nevertheless ties down a huge army of farmers, is likewise receding into the past.

The first cotton-picking machines were constructed before the war. The fascist attack slowed down but did not stop the advance of technique in the cotton fields. While the Nazi hordes were still trampling and burning Soviet territory, the CXM-48 cotton-picker was already operating in the fields of Uzbekistan and Turkmenia. Each such machine replaced 50-70 pickers.

Soviet designers are now busy on the task of adapting the cotton-picking machine for work with fine-fibre cotton.

In Turkmenia, agricultural mechanization made particularly striking progress after the war.

There were *eight* times more cotton-picking machines in 1951 than in the preceding year. That year, the republic's machine-and-tractor stations received 1,300 tractors (in terms of 15 h. p. units) and over 3,000 other machines, including cluster and row sowers, cotton-cleaners, and special machines to pick cotton from the unopened boll and to clear the fields of the dry stems of the cotton plant.

The growth of mechanization brought to the fore the need for a new irrigation system. Temporary canals replaced the *ariks* and that was a real revolution in irrigation. The new system requires much less water and increases the crop area at the expense of the levelled *ariks* and banks.

This system has been worked out by Soviet experts on the basis of the experience of several cotton-growing collective farms. These farms made use of temporary irrigation ditches whenever there was an urgent need for them. They did not suspect that they were on the threshold of a great discovery which would soon become the talk of the whole country. The Bolshevik Kolkhoz, Mari Region, is one of the pioneers of this system.

2

In its southern reaches, the River Murghab flows along a single narrow bed, but at the town of Iolotan it breaks up into numerous branches that fan out to the northeast, north, and northwest, and lose themselves in the sands.

The Murghab is one of the few rivers in the world that does not empty into a sea or lake. Reduced to canals and *ariks*, it disappears in the desert some fifteen miles north of the railway.

The total length of the canals and *ariks* in the delta of the Murghab is 3,100 miles, but the distance from Iolotan to where the river ends in the desert is under 60 miles.

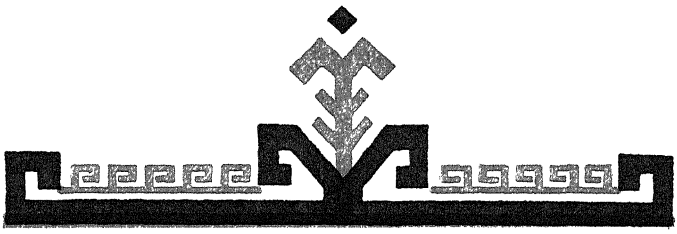
The area within the triangle formed by Iolotan, Mari, and Bairam-Ali is the heart of the Murghab Valley and when people speak of the Murghab Oasis they mean this triangle although south of Iolotan there is another oasis (Pende Oasis) which is likewise watered by the Murghab. Pende Oasis occupies the southern part of Mari Region; its centre is Takhta-Bazar, south of which there is only one other inhabited point—the town of Kushka.

This oasis is a narrow, 40-mile stretch of excellently irrigated farmland along the Murghab. The oasis developed rapidly after the Tash-Kepri Dam was built near the settlement of Tash-Kepri in 1940. The dam, the biggest hydrotechnical structure to be erected on the Murghab in Soviet years, brought the Pende Oasis to the fore as one of the leading districts of Mari Region. There, as in the Murghab delta, cotton plays the major role; grain is grown on land that is unsuitable for cotton. The Pende Oasis has many fine orchards and vineyards.

The huge Sariyaz Reservoir is under construction in this part of the Murghab.

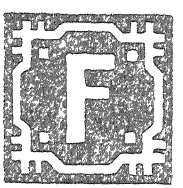
Livestock-breeding is being developed extensively in the Pende Oasis. Collective-farm flocks and herds graze almost the year round in the desert pastures that adjoin the cultivated fields on the east and west.

Another interesting point about the Pende Oasis is its fame as a carpet-weaving centre. The Pende carpet is a worthy rival of the Tekke product.



## Chapter I

1



ROM KRASNOVODSK the railway runs southeastwards for almost 450 miles and reaches its southernmost point at Dushak where it continues due east as far as Mari. Beyond Bairam-Ali it turns towards the northeast and enters the Kara Kum Desert. The few hours that the train takes to cross the desert are harder on the traveller than the whole preceding 600-mile journey from Krasnovodsk.

Throughout the journey from the Caspian, the desert gives the traveller only distant glimpses of itself, peeping over the horizon like a far-removed menace, but when the train passes Bairam-Ali it comes into full view and seems to say: "Well, here I am. Feast your eyes on me! You were gladdened by the sight of the heavy bunches of grapes in the vineyards at Geok-Tepe and of the mountains of cotton at the receiving depots of the Mari and Bairam-Ali collective farms. But all that was only an insignificant portion of Turkmenia. What you now see makes up most of the land. So keep your eyes on me!"

The passage from the oasis to the desert is like going from one country to another. Beyond Bairam-Ali, the Kara Kum is a hilly, desolate expanse.

The desert occupies about four-fifths of Turkmenia and is as big as Finland or one and a half times as big as Great Britain.

The first time the builders of the Central Asian Railway doubted the success of the scheme was when they crossed the boundaries of the Murghab Oasis and found themselves face to face with the

Kara Kum. This was the section that some engineers had in mind when they proposed laying the line in a tunnel.

The main feature of the Kara Kum landscape is either loose sand piled up in *barkhans* or broken ground with the sand held together by sparse vegetation. The stretch between the Murghab and the Amu-Darya, that was subjugated by the dogged railway builders, contains both shifting and fixed sand.

It does not need an experienced eye to distinguish the loose sand from the sand fixed by the roots of shrubs and trees. Quite often it is difficult to accept the latter as part of a desert. The *barkhans* lie exposed to the sun like the waves of the sea, but the fixed sands look more like a unique park planted in a hilly locality. That is probably the reason why geographers and economists call some sections of the desert the "Turkmen forests."

These are quite unlike the forests in other parts of the Soviet Union. There are no shady glades, stumps overgrown with moss, or thick foliage forming a green canopy overhead. But trees, the basis of all forests, are plentiful here. These are saksaul, desert acacias, tamarisk, kandym and certain other trees and shrubs that have acclimatized themselves to an almost completely waterless life in the desert.

In keeping with the general colour scheme of the landscape, the leaves of these trees are a silvery-grey. They are small and elongated so as to minimize the loss of precious water through evaporation. The saksaul, which is sometimes over 20 feet high, is the most valuable of the trees in these forests. The sight of saksaul thickets in the heart of a desert will most certainly amaze a northerner. These tree- and shrub-overgrown expanses of sand form what books and stories call the "terrifying" Kara Kum Desert, which for a long time was one of the least explored places in the world.

The first accounts of the desert were given by people who saw only a small part of it and thought that what they saw was representative of the entire territory occupied by the Kara Kum. Some of these accounts were written by people who never even went near the desert.

In the 19th century, Russian explorers and geographers did much to open the Central Asian deserts, but until Soviet times the Kara Kum remained a white spot on the map. A special research centre was set up at the railway siding of Repetek in the southeastern part of the desert only a few years before the Great October Revolution. This centre became really active only in Soviet years, when its investigations and the work done by expeditions in various parts of the desert dispelled many seemingly trustworthy but actually wrong notions about the Kara Kum and laid the beginning for a genuine understanding of what deserts really are.

In recent years, the Kara Kum has been studied on a particularly big scale. The joint Aral-Caspian Expedition alone, which is operating in Turkmenia and Kara-Kalpakia, is made up of representatives of 15 establishments of the U.S.S.R. Academy of Sciences and of three institutes of the U.S.S.R. Lenin Academy of Agricultural Sciences. The members include geographers, geologists, geodesists, soil scientists, plant-growers, biologists, agronomists, livestock-breeders, doctors, seismologists, geophysicists, archaeologists and other experts in various fields of science and engineering.

## 2

There are no really lifeless deserts. Territory that we traditionally call a desert is not desolate and barren throughout its length and breadth, but is a place where life takes on a special form, which in the Kara Kum is not the same everywhere.

Some regions are more desolate than others, the *barkhan* expanses, for instance, but that does not mean they are barren. Although the *barkhans* have no lush grass or luxuriant trees, it is a rare spot among them where the amazingly tenacious aristida grass does not have its deep roots or where the dainty and outwardly delicate desert acacia does not grow. In the course of the long struggle for survival these plants have acquired properties that enable them to live deep in the waterless, hot deserts and, at the same time, make them unfit for life elsewhere. To develop properly, the leaves and shoots of aristida grass must have a covering of sand. Under this covering, which protects it from the scorching rays of the sun, the

grass grows horizontally, the roots sometimes reaching a length of over 100 feet. Their special structure prevents any loss of moisture through contact with the dry sand.

Even where neither aristida grass nor acacias grow and where the surface of the *barkhans* is bare, the attentive eye will discern traces left by numerous living beings—tortoises, lizards and snakes —which, like plants, have learned to find the means of existence in places which seemingly cannot support life. Of course, these traces disappear when there is a wind. That is when the *barkhans* really present a picture of complete lifelessness and desolation.

But *barkhans*, or sands where life is the scantiest, are not predominant in the Kara Kum. They rarely occupy extensive areas. More or less broad belts of *barkhans* may be seen on the left bank of the Amu-Darya, somewhat to the south of the railway, on the right bank of that same river, south of the town of Farab, on the southern boundary of Tashauz, the northernmost of the Turkmen oases, and in the district north of Kizyl-Arvat. In those places the territory occupied by *barkhans* is from 35 to 50 miles wide.

Strangely enough there are narrow stretches of *barkhans* around oases and near wells, places where man is influencing the course of nature most.

There is vegetation over a large part of the desert and that makes most of the sand immovable; *barkhans* become stationary when they are overgrown with trees or shrubs. The first thing that man did when he came to live in the desert was to cut down the trees and shrubs for fuel. That released the sand and it began to scatter in the wind. Livestock intensified the process by destroying the fine network woven by the roots of grasses. Wherever man and his flocks appeared, the smooth, fixed sands became a troubled sea of *barkhans* that was capable of shifting and endangering the fruits of human labour.

On the outskirts of oases one frequently comes across *barkhans* shaped as spearheads and looking as if they were aimed at dwellings and fields. The wind carries them to the oases from places where man, in cutting down the trees, denuded the ground.

The trees now being planted in increasing numbers will help to harness the desert.

Incidentally, the proximity of bare *barkhans* to oases and human habitations gave rise to the belief that the Kara Kum is a huge "land of *barkhans*."

To see how erroneous this is one has only to leave the oasis and push past the ring of *barkhans* into the Kara Kum where a totally different picture meets the eye.

During the 6-8-hour journey from the parks of Bairam-Ali to the first *ariks* of Chardjou, the traveller will see almost all of the desert landscape's most characteristic features. Around Bairam-Ali there are high sandy hills, which give way to long dunes at the approaches to the station of Uch-Aji. Near the Amu-Darya the railway enters the imposing and restless world of *barkhans*.

3

In the Kara Kum, the only sources of moisture are rain-water holes and wells dug to the level of the subsoil waters. There are some 10,000 wells, but considering the size of the desert that number is insignificant. Besides, most of them contain meagre supplies, some yielding only 30 or 40 pails of water a day. This shortage was always the main hindrance to a settled way of life, yet people live in the desert.

In some parts, principally among the *takyrs* in the southeast where water is more or less plentiful in the wells, there are temporary *chaban* camps and permanent collective-farm settlements. The people there have learned to live quite comfortably in the desert. These settlements have schools, medical centres, clubs, post offices and shops. Some of the people grow vegetables, melons and even wheat. Naturally, such fields and settlements are few and far between.

There are many more temporary *chaban* camps than permanent settlements. For long centuries, the Kara Kum was the pastureland of the Turkmen tribes. The herds and flocks, whose size was the Turkmen criterion of wealth, find the grass they need in the desert.

In former times only a small, settled portion of the population grew cotton and planted orchards. Livestock-breeding was the mainstay of the national economy, the Kara Kum Desert being the

chief fodder base. The Turkmen tribes were frequently attacked by foreign conquerors and they regarded the desert more as a means of defence than as a threat to their crops. The Kara Kum provided fodder for their livestock and sheltered their women and children during enemy raids.

Before the Revolution, livestock was bred by very primitive methods. The animals lived in the open all the year round, no fodder was ever stocked up as a reserve, and severe snowfalls or sudden frosts during the hungry winter season reduced their number catastrophically. Diseases raged unchecked among the flocks because of the absence of veterinary assistance.

Soviet livestock-breeders are successfully coping with these scourges of the past. Thanks to the unlimited aid rendered by the Government, the collective farms not only developed new pastures in the desert but also learned to employ new methods of sinking wells and building reservoirs. Reinforced concrete is steadily supplanting wood and brick well casing. That speeds up construction, facilitates exploitation and, what is most important, more water accumulates in the wells. The first closed reinforced concrete reservoir (known locally as a *sardoba*) was built deep in the Kara Kum in 1950. It was named Kizylchaburun.

As a rule, the wells dug in former days were shallow. Now wells are being sunk to depths of between 300 and 500 feet. Some are even deeper than that. A reinforced concrete well, called Kosh-Kizyl (Red Camp), which was sunk in 1950, is 584 feet deep.

Perfection of the technique of sinking reinforced concrete wells in the desert has acquired particular importance since the time construction was begun on the big Kara Kum Canal. Numerous open reservoirs in the hot sands would have been inexpedient as a large part of the water would have been lost through evaporation. Scientists proposed building a dense network of *kyarizes* in which most of the water carried by the canal for the Kara Kum pastures could be stored.

It was not so long ago that in the desert the stock belonging to the *dekhans* suffered grievously from frost and a dearth of fodder.

In recent years, reserve supplies of hay and concentrated feeds have been piled up at the permanent winter pastures. The fact that

collective-farm shepherds are provided with warm clothes, footwear and food when they set out for their winter quarters causes no astonishment today, yet veterans remember the day when the *chabans* who took the flocks to the desert pastures were left to their own devices. Deprived of all communication with the *auls*, they lived in the sands as on a desert island. Their sole companions were one or two boy-shepherds and the strong Turkmen sheep-dogs, which guarded the flocks against the steppe wolves. *Chabans* who worked for the beys were completely cut off from the world. They did not hear the sound of human voices for weeks on end and hunted for their food. The skin of every wolf they killed meant a warm coat, bedding, or shelter against the severe winter frosts.

Anyone visiting the distant desert pastures today will find travelling libraries, wireless sets, and first-aid stations at the collective-farm camps. Food, mail and newspapers are delivered regularly by aircraft or automobile.

The grazing season is extremely long.

The first grass appears with the spring rains; in the southern regions, the rains begin at the close of February or the beginning of March. The shrubs and trees sprout leaves in March, and right until the end of April and sometimes until the middle of May the Kara Kum landscape is bright with grass and flowers.

The sand begins to dry quickly after the rains end in April. The leaves turn brown and then yellow. The flowers—tulips and poppies —wither away. Carex grass, which is nibbled eagerly by sheep, turns yellow and becomes hardly noticeable in the sand. A few weeks later the temperature of the upper layer of sand reaches 122-140° F. and the dry stalks of the ephemeral spring grasses are converted into ashes. That is when the Kara Kum assumes the classical appearance of a barren desert. The landscape remains unchanged until the latter part of autumn when an occasional fall of rain brings back the blanket of green grass for a short time.

The period after the close of May is a difficult one for the sheep. But the *chabans* do not lead their flocks back to the oases even then for with the exception of the cotton and wheat fields the land there is as bare as in the desert.

During the hot summer months the *chabans* have to draw upon all the experience handed down to them by their predecessors and upon the knowledge science has given them in order to find a place for their flocks where the subsoil waters are close enough to the surface to let the half-withered grass survive.

The colour of the short carex grass, which is all the food the sheep have until autumn, merges so completely with the dry sand and the short, twisted, silvery trunks of the trees that the untrained eye cannot distinguish it.

This grass is truly the pearl of the Kara Kum ocean of sand. It contains more proteins and fats than lucerne. In the summer it forms a unique kind of "growing hay" which sheep like very much. The grass is extremely tenacious and though it loses its green colour it continues to live on the moisture that collects in the sands at a depth of 4-8 inches. By the time summer sets in the roots of this grass are long enough to reach the moist subsoil sand, which is saturated with dew that forms as a result of the sharp difference between night and day temperatures; during the day the temperature is over 104° F. but at night it falls down to 59-64.5° F.

No thorough study has yet been made of the humidity regime in the desert. Quite recently, Soviet scientists established that though the sand looks dry there is a stable layer of moisture at a depth of 8-10 inches below the surface. This moisture is the source that everything living in the desert draws upon for its existence. Scientists are continuing their studies but as yet little is known of the reason why this layer forms and why it is so stable throughout the long Turkmen summer.

In the Kara Kum there is enough fodder for livestock to last practically all the year round. The only thing is that it grows very sparsely. Under the conditions prevailing in the desert, an average area of over two acres is needed to feed one sheep in the course of a single year. One can imagine what a huge area must be covered in order to find sufficient food for the collective-farm flocks, which average over 10,000 head each. Besides, it is not easy to drive sheep safely over such great distances and that accounts for the respect the *chaban* has been enjoying among the desert people for long centuries. True, that did not prevent the beys from regarding

their *chabans* as slaves. The people have composed many songs about the bitter lot of the *chaban* whose life was not valued above that of a sheepdog.

Today, the shepherd is universally respected and has every opportunity of leading a prosperous and cultured life at the collective farms. The traveller in Turkmenia will often come across shepherds with a medal or an Order shining on the breast of their sun-bleached gowns. Every district has its own outstanding shepherds and the entire republic is justly proud of them.

In the last few years, the leading place among the republic's karakul-breeding state farms has been held by the Pobeda Sovkhoz. The newspapers discuss the methods employed by the Pobeda's best *chabans* with the same attention and interest that is displayed by literary critics in a discussion of a new poem or novel by a well-known author.

The *chaban* is generously rewarded for his labours. Old songs portray him as a beggar, a poor man, who regarded soft bread as a dainty and for whom a new shirt or a padded blanket was an unattainable luxury. Prior to the Revolution, the most experienced *chaban*, even if he were to work for the bey all his life, could not dream of owning in his lifetime the same number of sheep that the skilled shepherd of today receives as part of his annual wages. Some shepherds earn as much as 30,000-40,000 rubles annually and receive 50-60 sheep in the form of additional wages.

Livestock-breeding is a difficult business in the Kara Kum. The Soviet Government took steps to lighten the labour of the shepherds. The MLS's or mechanized livestock-breeding stations, which are equipped with first-class machinery, are helping the collective farms considerably by doing all the shearing and mowing.

The reserves of hay and concentrated feeds that are being piled up are reducing losses through severe frosts, which cover the ground with a blanket of ice and in a few days carry off hundreds of thousands of sheep. In old Turkmenia people neither had nor could have such reserves.

The MLS's have mechanized the heavy work of drawing water. The republic has every opportunity of increasing its flocks and herds and the prospects before Turkmen livestock-breeders are tremen-

dous. A good three-fourths of the entire expanse of the Kara Kum can be regarded as pastureland. That means that the pastures of the Turkmen collective farms extend over a territory of almost 96,000 square miles.

Karakul sheep-breeding is a major branch of the republic's economy. The skin of the karakul sheep is as much a pride of Turkmenia as is fine-fibre cotton. Throughout the republic—Serakhs, the Tedzhen Oasis, the banks of the Amu-Darya, the region around Chardjou and the Murghab Oasis—there are special karakul-breeding state farms whose product is highly valued in the world fur market. Many collective farms, besides growing cotton, breed karakul sheep, sending their flocks to graze in the Kara Kum. The raw karakul skins are sent for final processing to the Chardjou Karakul Factory, which is the biggest enterprise of its kind in Central Asia.

The attention of the Turkmen livestock-breeders is not concentrated on the karakul sheep alone. This species does not yield much meat since the lambs are slaughtered for their skins almost the moment they are born. Another species of sheep, the Saraja, is bred in order to satisfy the republic's meat requirements. The Saraja sheep also grazes in the Kara Kum.

## Chapter II

### 1

The name Kara Kum usually applies to the entire desert expanse of Turkmenia. In reality, this name covers two different regions—the southern or low Kara Kum and the northern or high Kara Kum, which is also called the Zaunguz Kara Kum. Extending east to west for a few hundred miles from the banks of the Amu-Darya to the Ust-Urt Plateau, a sharply-defined line of hills that look much higher than their 170-230 feet forms the boundary between these two territories.

A chain of depressions, consisting of salt-marshes and *takyrs*, runs parallel with these hills almost along their entire length. These repressions make up the so-called Unguz, the assumed dried bed of one of the branches of the Amu-Darya. It is said that at one

time this branch flowed from Chardjou in the direction of Kara-Bogaz-Gol. The northern Kara Kum is called Zaunguz after the name of these depressions.

The Zaunguz Kara Kum is a large plateau that breaks off rather abruptly along the Unguz and slopes towards the north. Few of the sand-hills are as big and unique as in the lower, southern Kara Kum. More often than not the landscape consists of flat land strewn here and there with brown stones, but in general the desert is even more monotonous and desolate. Where it grows, the vegetation —a special kind of dwarf saksaul and various shrub-like plants— is as sparse as in other similar regions of West Turkmenistan.

There are hard, compact deposits of sulphur in some of the hills at the steep, southern extremity of the Zaunguz Kara Kum, principally in the Darvaz Hills near Unguz, which is about half way between Tashauz and Ashkhabad. The local population knew of the existence of these deposits, but until the Revolution they did not find any practical use for it. Russia imported all her sulphur. The Kara Kum sulphur works were established during the initial five-year plans and that brought the desert within the orbit of the country's industrial life.

Serniye Bugri (Sulphur Mounds) were explored by a Soviet scientific expedition headed by Academician A. Fersman, the indefatigable investigator of the earth's bosom.

The Zaunguz Kara Kum occupies about a third of the desert, the rest being taken up by the low or southern Kara Kum, whose eastern part—in the section between Bairam-Ali and Chardjou— is crossed by the railway.

Taken all in all, the southern Kara Kum has the features of a plain. But that can only be established with the help of special instruments, for the human eye can see nothing but declivities and the crests of sand-hills averaging 30-50 feet in height. Naturally, these hilly spaces, that always seem to be in a state of agitation, do not correspond to what one usually associates with the word *plain.*

Side by side with these tall hills there are 15-20-foot-high *barkhans* with the wind blowing clouds of sand off their crests. These crests are tilted towards the lee side and are usually well defined. With a little imagination such a sandy crest can be pictured as the

hump of a giant camel resting after a tiring journey, for that is exactly how the top part of the camel's hump is tilted when it lies down on the sand with its neck outstretched and its feet tucked in.

But does one really need to stretch one's imagination to see that semblance? In the course of many thousands of years, the camel has learned to adapt itself to the difficulties of life in the desert and has achieved some notable successes. The camel's organism has reduced its consumption of moisture to the minimum; the animal can go without water for several days. The hump, which consists largely of accumulations of fat, serves the camel as a source of internal moisture for its organism. The camel's warm, light wool has taken on all the shades of the desert's colour. The mucous membrane in its mouth does not easily lend itself to injury and that allows it calmly to chew the dry, prickly camel-thorn. The inevitable result of this adaptation to life in the desert was that the camel's outer appearance, too, blended with the landscape of its natural home. The play of light and shade in the desert forms a broken pattern of humped lines and a big animal like the camel would have been too marked if it were not for the arched shape of its head, neck and back. If that had not been the case, the camel would have been easy prey for the many wild beasts that roam in the desert.

An acquaintanceship with the animal kingdom in the Kara Kum furnishes still further proof of the infinite number of ways in which life adapts itself to various conditions. There are no rivers or streams and what little precipitation there is is quickly absorbed by the sand. Consequently, animals cannot or rarely can quench their thirst in the ordinary way. The desert is inhabited by beetles, reptiles, birds and even mammals which have learned to do without water. The Central Asian rabbit, for instance, is satisfied with the moisture it gets from plants. It must be taken for granted that the graceful Kara Kum gazelle, or *jairan* as it is known locally, can live without water for a long period, for a gazelle drinking from a pool or a river is a rare sight. Sometimes it is seen moistening its lips by a drying salt lake where the water is so saturated with salt that it discharges gypsum. Neither the bustard nor the desert lark needs drinking water. There are varieties of lizards and insects

The Repetek Desert Research Centre experimented with melon crops already before the war. It was shown that vegetables grow well not only on irrigated soil but also in trenches where the surface layer of dry sand has been removed. No irrigation is needed; the plants live on the moisture accumulated in the bosom of the *barkhans*.

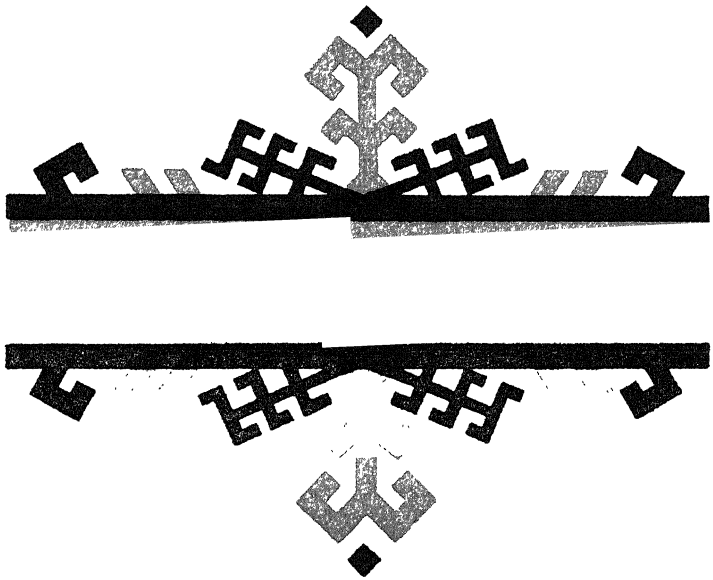
In recent years, the centre tried planting vegetables in the sand and watering them with salty well-water. These experiments were successful. The cucumbers, carrots, onions, radishes, and potatoes yielded a bumper crop in spite of their not receiving a drop of fresh water. There was nothing in their outward appearance or taste to distinguish them from the vegetables grown under normal conditions.

The centre is steadily extending its investigations.

People who have been to Repetek before will remember the barren *barkhans* and the tiny house standing in solitude under the blazing sky. It reminded one of a frail boat in a heavy sea. The impression was that if the wind only blew a little harder, the huge *barkhans* would begin to move and bury the solitary house and all its occupants under tons of sand. It needed enthusiasm and a sincere love of science to carry on painstaking research during the summer when the temperature of the sand was well above 122° F. Repetek had no radio installations in those days. Trains that stopped for two minutes twice a day were the only means the investigators at the station (they were mostly under-graduates and post-graduates of institutes in Leningrad, Moscow and Tashkent) had of communicating with the outside world.

Now the solitary little house amid the bare *barkhans* has given way to a group of structures with luxuriant desert plants growing around them. The vanes of a modern electric motor tower above the roof-tops, the green crowns of the saksaul-trees, and the crests of the *barkhans* that have been made immovable by the Repetek "desertmen." Furnished with up-to-date equipment, the centre is making a great contribution to Soviet desert studies.

The flowering appearance of the land directly around Repetek is striking proof of the fact that the desert is not doomed to eternal barrenness. The struggle against the sands is a difficult one but it is not beyond the powers of Soviet people.



# Chapter I

## 1

AFTER LEAVING the shores of the Caspian and speeding across six hundred miles of waterless expanses, deserts and clayey wastes, with stops at the chief inhabited points of the Turkmen Republic, the train finally pulls in alongside the platform of Chardjou Station.

In the course of that journey the traveller had every opportunity of acquainting himself with the varied Turkmen landscape: high, desolate plateaus, beds of ancient rivers, dried salt lakes, smooth *takyrs*, and sand and clayey plains. He saw the flowering Kopet-Dag foothills, the green oases, the cemeteries of ancient cultures, and *barkhans*. The traveller saw all the zones of the desert and experienced all the temperature changes—from the heat of the day to the coolness of the night.

People got off the train at the sidings and stations, and their places were taken by others—fishermen of the Caspian, oilmen of Cheleken and Nebit-Dag, or students. In the compartments there were livestock-breeding experts and *chabans*, members of scientific expeditions, builders, cotton-growers and vine-growers.

Chardjou!

Turkmenistan's eastern boundary lies only a little more than six miles away. Ahead there is the Amu-Darya Bridge and the small town of Farab, beyond which the railway enters Uzbekistan.

Chardjou, one of Turkmenia's largest towns, is on the left bank of the Amu-Darya, in the heart of the cultivated land which is sometimes called the Chardjou Oasis.

Prior to the Revolution, Chardjou (it was then called Chardjui) was part of the Bukhara khanate and was divided into two parts: Russian or New Chardjui and Old Chardjui that was populated by Uzbeks. The Russian part was situated close to the railway station.

Pre-revolutionary Chardjou's prosperity depended on the quantity of stored and sold cotton and on the quality of the karakul skins brought by the *chabans* to the annual fur fairs.

The only difference between Chardjou and the other towns of Central Asia is that it lies close to such a big river as the Amu-Darya. That makes it a river port. A shipping line was founded on the Amu-Darya already in 1888, when the first steamer, assembled from parts brought from Russia, set out on its maiden trip.

At first, the Amu-Darya was not an important means of communication. Yet the proximity of a big waterway gave Russian or New Chardjou a certain individuality over Mari or Kizyl-Arvat.

Old Chardjou, situated some 10 miles away from the railway station, was altogether different. It was a typical old Asian town in which medieval Moslem features survived into the 20th century. In the fortress lived the Bukhara bek and other high officials. The town was enclosed by a high wall with towers and embrasures. Its entire central part was taken up by a roofed market with a maze of dark, narrow lanes with shops, stalls, handicraft workshops, barber's shops, eating-houses and tea-houses. Around the market huddled the gloomy, clay houses of the people. There was not a single window facing the streets. The principal thoroughfare was so narrow that two bullock carts could hardly pass each other, while the lanes were only two or three feet wide. Old Chardjou was inhabited mainly by Uzbeks for in the Bukhara khanate the Turkmen were mostly an agricultural people.

The October Revolution did not affect Old Chardjou immediately. The town was under the rule of the Bukhara emir. In the first few months after the Revolution he officially recognized the new, Soviet Government of Russia to screen his preparations for a war against Soviet power. His officials and *mullahs* went to the *auls* and *kishlaks*, calling upon the inhabitants to rise against the Soviet Government.

The *basmachis* kept the Soviet Army in the field for several years, but the days of the emirate were already numbered. The Turkmen and Uzbek poor realized that they were being deceived by the emir and the beys and resolutely began to resist the *basmachis*, who pressed the population into their bands. The example set by the Soviet Army in the war against the interventionists gave the people the inspiration to fight the despotic rule of the emir.

In the middle of August 1920, the working people of Old Chardjou rose against the emir. Overcoming the resistance of the Bukhara soldiers, they arrested the bek and appealed to the Soviet Army for assistance. Acting jointly with the people of Bukhara, Soviet Army units approached the emir's capital and captured it.

The emir fled. The Bukhara emirate was proclaimed a people's republic. But the real, revolutionary transformation of life in the towns and *auls* of the former emirate began later, when the toilers of the people's republic proclaimed Bukhara a Soviet republic and announced their inexorable desire to unite with Soviet Turkestan. That took place in 1924.

As a result of the national delimitation of Central Asia, the town of Bukhara came within the boundaries of the Uzbek Soviet Republic, while Chardjou and Kerki became part of Soviet Turkmenistan, as did the western portion of the Khiva khanate that lies in the delta of the Amu-Darya and is now known as the Tashauz Region.

Old Chardjou ceased to exist as the seat of an independent bek, while New Chardjou rapidly began to acquire all the features of a big, new, Soviet town.

The chief town along the Amu-Darya and a regional centre of Turkmenia, Chardjou is now playing an important role in the life of the republic. It has grown into a major industrial centre and big transport junction on railway, river, automobile and air routes.

The proximity of the Kara Kum pastures and the presence of a waterway leading to the livestock-breeding farms of Kara-Kalpakia were the reasons that led to choosing Chardjou as the site for a big karakul-processing factory. The closeness of the river speeded up the growth of Chardjou's cotton-cleaning factory as well as its silk-winding and cotton-wool mills. The raw material for these enter-

prises was brought in boats, barges and steamers both from the upper reaches of the Amu-Darya and from the fertile regions in the delta.

The ship-repair yards had to be extended to meet the needs of the river transport, while the increased number of machines used in the irrigation system in the post-war years led to the construction of an excavator-repair works at Chardjou.

A drive-belt factory was built in the town during the Second World War. That was followed by the opening of a broadcloth factory, an oxygen plant, and an artificial fur works.

The town is expanding continuously. More houses, blocks, and streets are appearing. The new, tall building of the Pedagogical Institute stands in a former outskirt where dust and heat were once supreme. Score of bright, handsome dwelling houses, built in the post-war years, have formed whole streets. Luxuriant trees are growing in the new parks that sprang up on what was once waste ground.

Pre-revolutionary Chardjou did not have a single secondary educational establishment, but today the children of workers, rivermen, collective farmers and employees are studying in agricultural and river transport technical schools, the medical colleges, the pedagogical institute and scores of secondary schools. There are clubs and libraries and one of the most beautiful buildings is that of the cinema which was built in the heart of the town after the war.

As one strolls down the broad, brightly-lit streets of Chardjou today and hears the loudspeakers filling the town with music from Moscow or Ashkhabad, sees students, workers and employees waiting for a bus to take them home or to a club, or meets people hurrying out of hotels to catch a plane for Tashauz, Ashkhabad or Tashkent, the recent past seems infinitely far away.

2

Every town has its own character. Like people, no two towns are exactly alike. Many features of the past and, especially, of the present combine to make Chardjou look like Mari, Ashkhabad and Kizyl-Arvat. But each has something of its own that makes an acquaintanceship with it interesting and useful.

Compared with Chardjou, Ashkhabad is bigger, more beautiful, more populated, and richer. It plays a greater political, economic and cultural role in the life of the republic. But with its broad, tree-lined thoroughfares and proximity to a mighty Central Asian river, Chardjou, too, has a beauty of its own.

The nearness of the Amu-Darya makes the very air in Chardjou different from that in towns that are hemmed in by the desert. The cares and occupation of the people—at any rate, of many of them—are bound up with Chardjou's activity as a port. One of the town's biggest industrial enterprises is the ship-repair yard. Near the town are located a back-water and the wharves. Chardjou is the seat of the Shipping Administration of Central Asia, that operates steamers not only on the Amu-Darya but also on Lake Balkhash, the River Ili in Kazakhstan, Lake Issyk-Kul in Kirghizia, and rivers in Uzbekistan and Tajikistan. One of the town's special educational establishments is the river transport technical school, while the River Transport Workers' Club is among its important cultural institutions. Furthermore, in the summer, the people of Chardjou have facilities that are quite out of the reach of the inhabitants of Ashkhabad or Nebit-Dag. The back-water with its sand beaches is popular with people who like to bathe or boat, while old-timers know quite a few spots up- or down-stream where fishing is excellent.

The heavy rail and river traffic governs many aspects of the life of this busy and rapidly-growing regional centre.

Chardjou has for long been a big transport junction. Back in distant times, trade between Khoresm and other countries of the East was carried on either by river through Chardjou (in big, wooden, sail-and-oar boats) or by camel caravan—from Khojeili through Khiva, Urgench, Khazarasp, and along the left bank of the Amu-Darya to Chardjou. Merchants from Khoresm bought or sold goods in Chardjou's markets.

The town's role as a trade and transport crossroad was enhanced still further after the Central Asian Railway was built. Towards the outbreak of the Revolution, the river and caravan routes between Khiva and Chardjou were among the busiest in Central Asia.

But what a long and tiring journey that was.

It lasted for weeks. Goods sent from Vladivostok to Moscow sometimes arrived at their destination faster than a bale of cotton sent by caravan from Tashauz to Ashkhabad or Tashkent.

The airways came to the assistance of the camel caravan and river steamers during the first five-year plans, but they carried mainly passengers and mail. Somewhat later a highway was built to link Tashauz with Chardjou. But the sands made driving so difficult that until recently the bulk of the goods was carried by camels or boats. To a certain extent Tashauz Region of Turkmenia, Khoresm Region of Uzbekistan, and the whole of Kara-Kalpakia continued to be cut off, as it were, from the rest of the Soviet Union, and that hindered their development.

During the first post-war five-year plan, the people of Uzbekistan and Turkmenia saw a cherished dream come true: work was started on a railway from Chardjou to Urgench. In the spring of 1952, the first goods train set out from Chardjou for Khoresm and Tashauz Region and initiated a reliable transportation service connecting the lower reaches of the Amu-Darya with the railway network of the Soviet Union.

The Amu-Darya's role as a goods carrier will naturally diminish after the Chardjou-Kungrad line is built. Chardjou will become even more important as a transport junction. As a matter of fact, its importance is already greater, since the movement of goods to and from Tashauz is no longer seasonal and does not depend, as was previously the case, on the weather or the water level in the river.

3

The imposing bridge across the Amu-Darya, which is among the longest in the Soviet Union, was and continues to be one of the sights of Chardjou. Its construction crowned the victory of the Russian engineers who built the Central Asian Railway.

The builders reached the Amu-Darya in November 1886. From the low, clayey banks a view opened of the broad rapids with the turbulent, muddy waters racing madly from south to north and threatening to carry away piles and piers. Flat sandbanks divided the river into several streams and it did not need a close look to

see that these banks were unstable. The water, whose colour matched that of the banks, did not have any permanent channel.

It was not enough to build a bridge across the water. The bridge had to span the entire floodland so that no unexpected whim of the river could endanger the movement of trains.

In those years European engineers had no experience of building a bridge of such length.

The first pile was driven into the bed of the Amu-Darya at the beginning of September 1887, and by the middle of January 1888, that is, only four months later, the first train thundered across the bridge. Built wholly of wood, it measured 9,013 feet. In 1902, or fourteen years later, it was replaced by an iron bridge, which in the course of decades remained one of the longest in Russia.

4

No river in the world has gone through so many changes as the Amu-Darya and, possibly, no other river has had so many names.

Ancient geographers called it the Vakhshu, Oxus or Jeihun. The meaning of the words Vakhshu and Oxus is not clear. Vakhshu is probably of Sogdiana origin, Oxus—Greek, while Jeihun, in Arabic, means mad. The river was called mad for its tempestuousness, the speed of its current, and the sudden changes in its channel. With good reason it was also called the Garib, which means wanderer, since, besides being stormy and hard to tame, it is restless, changing to new channels at whim. Local rivermen say that one can only tell where the Amu-Darya flowed yesterday, for there is no telling what channel it might choose tomorrow.

The river was called the Amu-Darya in the 6th century, after the town of Amul, which stood in the place of present-day Chardjou. The word Darya means river; consequently, the Amu-Darya can be translated as a river flowing past Amul.

The present name applies only to part of the river. In its upper reaches—in the Pamirs and the Hindu Kush—it is called the Vahjir. Somewhat lower, it is called the Vahan-Darya. After receiving the tributary Pamir, the Vahan is called the Panj. The word *panj* means five, and the name shows that besides the Vahan, four

other rivers can claim to be the sources of the Amu-Darya; they are the Pamir, Gunt, Vartang and Vanch.

Coming down the Hindu Kush, the river flows along the Soviet-Afghan border first as the Panj and then, joined on the right by the Vakhsh, its greatest tributary and the biggest river in Soviet Tajikistan, as the mighty Amu-Darya.

Along the right bank, near the town of Termez, begins the Uzbek Republic, while farther, beyond the kishlak of Kelif, is Turkmenia. North of Kelif, the river turns and wends its way across Soviet territory.

The Amu-Darya flows across Turkmenia for more than 600 miles and is the source of life for the greater part of Chardjou Region. The population of this region is concentrated chiefly in the river's floodlands or along the banks of its tributaries that join it on the right. In Turkmenia, no tributary joins the Amu-Darya on the left.

The river's lower reaches are in Uzbekistan and Kara-Kalpakia. The canals and *ariks* that get their water from the Amu-Darya's lower reaches bring life to the Khoresm Oasis in Uzbekistan and the adjoining Tashauz Oasis in Turkmenia.

Finally, after covering a distance of 1,420 miles from its sources and passing the young city of Nukus, capital of Kara-Kalpakia, the river breaks up into the numerous branches, that form its delta, and drains into the southern part of the Aral Sea.

The lower portion of the delta is in Kara-Kalpakia.

In Turkmenia, as in its middle reaches, where it emerges from the mountains, the Amu-Darya flows across steeply sloping country which brings its speed up to 13-16 feet per second. That is extremely fast for a valley river. The Volga is almost two and a half times slower.

The Amu-Darya loses its speed only in its lowest reaches, after passing Nukus. That is the cause for the swamps in the delta, which so seriously hinder agricultural development.

The river's speed and the low resistance of the soil on its banks are the chief reason for its notorious wanderings. The ground abutting the river yields under the terrific impact of the huge mass of water. The result is that virtually overnight the river may deviate

hundreds of yards or even a few miles into a new channel, leaving nothing but wet sand in the old one.

In the channel, erosion goes on continuously. The light silt and sand are easily carried by the current and in its course across Turkmenia the Amu-Darya is saturated with more hard particles of silt than any other river in the country.

Almost everywhere along the journey downstream from Chardjou, the traveller will see where banks had collapsed and sometimes even the very process of crumbling and erosion. Here and there the sand trickles into the river in tiny streams and cascades. The water undermines the banks from the bottom like a suction dredge until the hardly noticeable cascades develop into sand falls. There have been cases of the ground cracking and falling into the water, taking away with it houses and gardens. Even the roots of trees are not strong enough to hold the land back.

Between Chardjou and Nukus there are traces of destruction that are much more striking than torn-up trees or washed-away houses.

On the right bank, some 25 miles below the place where the Amu-Darya leaves Turkmenia, stands the town of Turtkul, which only recently was the capital of the Kara-Kalpak Autonomous Republic.

It was quite a big town and successfully coped with its task as the centre of a new life, which the Revolution brought to the half-forgotten people inhabiting the Kara-Kalpakian steppes.

Today, that town is almost non-existent. A considerable part of it was washed away by the Amu-Darya. At one time Turtkul, called Petro-Alexandrovsk in tsarist days, was situated several miles away from the river. But the Amu-Darya suddenly, as it usually does, shifted to a new channel and its waters bore away several of Turtkul's streets. The town was moved farther east and for some time the river left it in peace. Then the Amu-Darya made another leap and tore away several more streets. The ever-present danger facing the town was the reason why on the eve of the Second World War the capital of Kara-Kalpakia was moved farther north, to Nukus.

Such is the Amu-Darya's capacity for destruction. People who drink the water from the river say it is "soft"; it has a very pleasant taste and is healthful.

The silt, too, is of a high quality. Settling in the Khoresm Oasis, it favourably influences the chemical composition of the soil. Local farmers consider that the fields watered by the Amu-Darya need no further fertilization. That view is corroborated by the rich harvests grown in Tashauz Region.

With its vast reserves of water and an average width of almost a mile (in places more than two and a half miles), the Amu-Darya can irrigate an area of 5,000,000 acres. That is almost five times the territory under cultivation throughout Turkmenia at present or 15 times greater than the area the Amu-Darya is now irrigating in that republic.

The big Kara Kum Canal will do much to eliminate the gap between the river's potential and the actual benefit that man has been deriving from it.

## Chapter II

### 1

The cultivated land watered by the middle reaches of the Amu-Darya is not very wide, rarely exceeding 5-7 miles. The average width is only 2-3 miles. In places the river is hugged by the desert.

Yet even in this comparatively narrow strip, crops cannot be grown everywhere. The lowest part is either submerged by water or converted into swamps. These areas are overgrown with reeds and moisture-loving trees and shrubs. Poplars, oleasters, willows, various shrubs and sedge intertwine to form the unique Amu-Darya forests called *tugais*.

*Tugais* are the jungles of Central Asia. They are so dense that sometimes it is quite impossible to move about in them. Besides, it is dangerous for people to cut their way through singly, for they may be attacked by a tiger or a wild boar.

Naturally, *tugais* are not developed as cultivated land. That takes the lower Amu-Darya floodlands out of the reckoning when the total area of the republic's cultivated land is calculated. In Turkmenia, *tugais* occupy a territory of 500,000 acres, but it would be incorrect to regard them as completely useless.

They teem with pheasants and there is an abundant growth of liquorice, bulrushes, wild sugar-cane, and reeds. Undoubtedly, there is a great future in store for the *tugais* as suppliers of raw material for the vitamin, pulp and paper, starch and treacle, and other industries.

Liquorice has already occupied a place in the republic's industry. One of the enterprises in Chardjou is a liquorice factory. The liquorice plant grows in various places along the river. The root is obtained by turning up overgrown plots with special ploughs. A certain sequence must be observed in the exploitation of these plots, for on the ploughed land the root takes at least five years to grow. The pith of the root is sweet, and experiments are being conducted to use the root's sweet substance in the confectionery industry.

In the Amu-Darya Valley, cotton, wheat, vegetables and melons are grown only where the land is 5-7 feet above the level of the *tugais*. That elevation is needed to protect the crops from being flooded or washed away by the river, and when people speak of the cultivated lands along the Amu-Darya they mean these somewhat elevated plots stretching in a narrow strip between the river and the desert.

With an abundance of water close at hand, the location of this oasis along a great Central Asian river should have left nothing more to be desired. Yet that is not the case. The fields by the banks are several yards above the river level, as a result of which the water cannot reach the roots of the plants. To do that it must be raised by special water-carrying structures.

Such structures can be seen all along the Amu-Darya. Many have survived for long centuries, feeding this ancient agricultural belt with water. However, it has always been difficult to build dams and irrigation canals here because of the tremendous amount of silt deposited by the river, the frequent wanderings of its channel, and the unpredictable water level.

The net result is that the agricultural importance of the Amu-Darya Valley along the river's middle reaches is not as great as could be expected of lands situated close to such a huge water artery.

The cultivated land is particularly narrow in the stretch between Chardjou and the Kara-Kalpakian border. In this area the river is fringed by the desert on the west and east and the floodland broadens out to 1-3 miles only in separate places. Altogether, there is much less land suitable for cultivation than the territory occupied by *tugais*.

Yet man chose to settle on the banks of the Amu-Darya, the ample supply of water being the attraction through the ages. Most of the inhabited points of Chardjou Region are concentrated close to the river. Where, for one reason or another, neither cotton nor grain could be grown, the people cultivated fruit-trees, melons and silkworms. Animal husbandry was an important branch of the region's economy. The Chardjou musk-melon and the Chardjou karakul pelt, whose curls resemble whirlpools or eddying sand, always commanded a high price in the markets of Central Asia.

Palvart silk was another article that was greatly valued in the past. Palvart is a small settlement that lies at a point where the cultivated lands stretching to the north of Kerki break off abruptly and the river enters the *barkhan*-heaped Karabekaul District.

In Soviet years, Chardjou Region became Turkmenia's major silk producer. The body of skilled workers at the Chardjou Silk-Winding Mill is growing with each passing year and has overshadowed the one-time fame of the Palvart spinners. Machines have lightened the work of unwinding cocoons and made it immeasurably more productive, but that has by no means detracted from the need for dexterity and a truly magic sensitivity of the workers' fingers. Famous as it was, the silk that delighted the inhabitants of medieval Bukhara is below the standard required by Soviet buyers. That alone shows how far the spinners have advanced, for the quality of silk directly depends on the quality of the spinning.

The mulberry is the principal variety of tree planted by the region's collective farms. These trees are the property of the state. In Chardjou Region, every agricultural artel has special silkworm-breeding brigades, most of which are captained by women.

In most of the districts along the Amu-Darya, the economy of the collective farms is based on cotton, silk, fruit-growing, sheep-breeding and, to some extent, fishing, although in these reaches of

the river fishing cannot compete with sheep-raising, silkworm-breeding, or agriculture. Fishing plays a leading role farther north —on the islands and in the bays of the Amu-Darya delta.

North of Deinau, the river's channel narrows down and the current is more concentrated and faster.

The last big settlement north of Chardjou Region is Darganat, a few score miles beyond which begins the Khoresm Oasis of Uzbekistan.

2

The valley of the Amu-Darya is regarded as the eastern boundary of Turkmenistan. We usually say that Turkmenia lies between the Caspian and the Amu-Darya as though some other republic begins on the river's eastern bank. That is not correct because a considerable part of Turkmenia stretches east of the river.

This stretch is narrow north of the railway, but to the south it widens and reaches 45-50 miles where it faces the town of Kerki.

Had there been nothing more in this thinly populated, remote corner than the sands, pastures, and cotton plantations the traveller saw in other parts of Turkmenia, there would have been no sense in stopping here before going on to more densely peopled and interesting places.

Indeed, though in the past this area never played any considerable role in Turkmenia's socialist economy, its importance as one of the republic's leading industrial districts has increased in recent years. The southern part of the area is occupied by the Kugitang-Tau massif, which is rich in mineral resources.

For a long time, it was known that this massif contained reserves of natural sulphur as well as deposits of zinc and lead. These metals showed themselves here and there in the precipitous sides of the mountains and the people used them for their everyday needs as best they could. When the *dekhans* lacked shot for their hunting pieces or had to make bullets in a hurry in order to fight back an enemy raid, they set tufts of bulrushes on fire and brought them close to the rocks. The lead melted and flowed down into stone or clay trays.

The Gaurdak Sulphur Works were opened in Soviet years, during the first five-year plans. Investigations continued during the war

years, when more riches were brought to light. Coal mines were opened. The discovery of pure gypsum near the station of Kerkichi led to the construction there of a gypsum works producing boards, slabs, beams and other building materials.

## Chapter III

### 1

As far as Turkmen economy is concerned, the Amu-Darya's main value lies in the fact that it irrigates the big Tashauz Oasis, which is one of the republic's most important agricultural areas and an ancient centre of settled life. The river leaves Turkmenia before filling the numerous canals and *ariks* that carry water to the fields of Tashauz Oasis.

Where the borders of Turkmenia, Uzbekistan, and Kara-Kalpakia converge, the broad channel of the river is contracted by the rocky Tuya-Muyun (Camel's Neck) Gorge. The river, already fast before it reaches the gorge, careers madly between the stony banks, loops sharply, veers to the west, then to the south, makes another full rightabout turn, and again rushes northward to give its waters to the orchards and fields of Khoresm Oasis, the western half of which belongs to Turkmenia and is known as Tashauz Oasis.

Tashauz, the chief town of the region, is on the Shavat, one of the trunk canals of the oasis. The Shavat Canal is more than 90 miles long and takes its beginning in the Amu-Darya near Hanka, a district centre of Uzbekistan's Khoresm Region. It supplies water to Urgench, the regional centre of Khoresm, and irrigates the fields of Uzbekistan's Shavat District before entering Turkmenia and bringing water to four of its districts (Andreyev, Tashauz, Ilyali and Lenin). This shows that the canal is as economically important as rivers like the Tedzhen and even the Murghab.

The Shavat divides Tashauz.

Quite recently this was a typical, small, medieval clay town with intertwining, dreary streets and blind alleys none of which were over seven feet wide. In summer, they were hot and dusty, while in

winter people floundered in mud. The low, flat-roofed, windowless houses huddled close together.

In Soviet years, the busy main street leading from the bridge to the railway station was paved with brick. The former stalls of the Khiva merchants and money-lenders gave way to shops. Producers' co-operatives were formed. Like the radio, electricity came to stay in every home.

But old Tashauz is living out the last days of its many-century-old existence. A new town has already appeared on the other side of the canal; this is new Tashauz, a big regional centre with modern streets and buildings amidst the greenery of orchards.

2

New Tashauz sprang into life during the first five-year plan (1928-1932). On the left bank of the Shavat were a fort built in the days of the khanate, and estates, orchards and fields that belonged to the beys. There was also a small, primitive cotton-cleaning mill.

Now on that bank of the Shavat are broad, straight streets with several rows of trees on either side and modern, comfortable buildings. One of the best buildings along the main thoroughfare houses the pedagogical institute, the first establishment of higher learning in the region. A recreation park was laid out on the site of the former fort. The semi-ruined watchtower, a heritage of the Middle Ages, looks like a decorative ornament in the park, where children frolic, sports contests are held, and music is played in the evenings. The small, primitive mill was converted into a modern, well-equipped enterprise that gets its raw material from the collective-farm cotton plantations in all the seven districts of the region. The new oil-expelling factory, working on cotton-seed, produces industrial and refined oil. This factory is the tallest building in the town and can be seen from all the approaches to Tashauz.

The republic's first jute factory was built here during the post-war five-year plan; a second factory is now under construction. The Tashauz collective farms are growing kenaf and jute on an increasing scale. Tashauz is steadily expanding; its blocks are extending over greater areas and new streets are appearing. Houses and orchards

are springing up on the outskirts, on lots that were vacant only recently.

At first, all the building in Tashauz was concentrated on the left, southern bank of the Shavat. But as soon as the town was reached by the Chardjou-Kungrad railway, the builders began to give their attention to the right bank as well. A station with a railway workers' settlement around it was built about a mile north of the Shavat. Thus, old Tashauz found itself surrounded on three sides. Its territory is shrinking. From the air, the traveller can easily distinguish the straight thoroughfares of new Tashauz from the narrow, crooked streets of the old town. Old Tashauz occupies about a third of the townscape that opens to the passenger in a plane the moment the steel bird begins to circle preparatory to landing on the airport in the heart of new Tashauz.

Pushkin Street, the main thoroughfare in which are located the most important administrative and cultural establishments in the region, leads from the residential district, which grew up on the southern outskirts during the last four years, to the humped, wooden bridge spanning the Shavat. On the other side, the traveller is suddenly confronted with some of the medieval atmosphere that reigned for many centuries in Khoresm Oasis—in its fields and clay towns—until the very day the thunderblast of the October Revolution awakened the toilers of Khiva and gave them the opportunity of building a new, dignified, happy life with the assistance of the fraternal Russian people.

3

The purpose of the big canals, one of which is the Shavat, is to provide water to the lesser distributing canals or *yabs*, which in their turn are connected with a vast network of shallow *ariks* that take the water to the fields.

A chart of the irrigation system of the Khoresm and Tashauz oases resembles a branchy tree with the Amu-Darya forming the trunk, the main canals—the boughs, and the distributing canals—the branches growing out of the boughs. The *ariks* furrowing the fields and orchards are reminiscent of the intertwining veins that carry the life-giving juice to the leaves.

*Ariks* will be completely done away with when the region's collective farms finally go over to a new irrigation system. The extremely fertile land occupied by the *ariks* and their banks will be put to the plough. That will extend the area under cotton, sorghum and lucerne.

Khoresm always had the longest system of canals and *ariks* in Central Asia. In the aggregate, the trunk canals are 310 miles long, while the distributing canals stretch for 1,860 miles; the *ariks* cover approximately the same distance.

In spite of such a developed irrigation system in the oasis, the *dekhans* never had enough water for their fields in pre-revolutionary times.

When Soviet power was established, Khiva's agriculture was in a miserable state. The poverty of the Khoresm working people was even more abject than that of the Turkmen nomads or the Bukhara *dekhans*.

When the ancient system of dividing the waters of the Amu-Darya was worked out, the people inhabiting the oasis were disunited. The clan order ruled the economy and life of the Khiva farmer. When a clan settled down it built a *yab* for its own fields and did not give a drop of water from it for the fields of a neighbour. In cases where clans settled side by side they still built their own *yabs* and threw their own dams across the trunk canal. Along the ten trunk canals in Khiva there were more than 500 dams and a corresponding number of *yabs*. The cultivated land stretched in narrow ribbons along the "clan" *yabs*, while the area in-between remained no man's land and, consequently, uncultivated. In comparison with the length of the canals, the irrigated area was incredibly small. For example, only 360 acres per mile of the length of the Shavat were irrigated.

Each trunk canal had several structures, called *sake*, for holding up the water. These kept the canals full and served as spillways in the event the river level was catastrophically high.

The no man's land between the properties of the different clans received the excess water from the *yabs* and became marshy. In Central Asia, marshland is salty because of the intense evaporation during the summer months. As a result, fertile lands were converted into salt-marshes.

A very primitive structure, called *chigir,* was used to raise the water to the fields. A *chigir* is a vertically positioned wooden wheel with pitchers or hollow pumpkins fastened to the rim. These scooped the water out of the canal and poured it into the *arik.* The wheel was turned by a camel, ox, horse or ass.

The groan-like creaking of the *chigirs* filled Khoresm night and day. Sometimes this incessant groaning was pierced by the cry of a camel or an ass and seemed to be coming from the earth itself, an earth flayed and torn to pieces by the strife between the clans and tribes and by the despotism of the khan, the beys, and all others who wielded power and wealth and, consequently, the right to wrest from the people the fruits of their labour.

Good or bad, the *chigir* nevertheless brought water to the fields and no matter how much labour was expended on that method of irrigation it was yet incomparably lighter than the annual work of dredging the canals and *ariks*, which was the curse of the poor.

In the field of agriculture, Soviet power scored a great victory in Central Asia when manual dredging was forced into the past in most of the regions, the lower reaches of the Amu-Darya included. In some places, collective farmers may still be seen manually clearing the distributing canals of silt in winter, but the trunk canals are now dredged entirely by machines.

4

The Tashauz Oasis is only a portion of the cultivated land along the lower reaches of the Amu-Darya. Only part of the trunk canals feeding the 27,000 collective-farm households in Tashauz Region belong to Turkmenia. The upper reaches of these canals are in Uzbekistan.

In former times, the fields and farms of the Uzbeks were also situated along the upper reaches of the trunk canals, while the land of the Turkmen clans lay below them. The khans and their officials took advantage of this to sustain and fan national hatred and hostility. The Khiva rulers preferred to throw water into the desert or into no man's land rather than let it go through to the Turkmen population in quantities above what was necessary to keep them in a

state of semi-starvation. The maxim of the Khiva nobles was: "Do not give the Turkmen too much or too little water, for a well-fed Turkman will not acknowledge your authority, while a hungry one will rebel. He will work at his *chigir* from morning till night only when he is neither full nor hungry."

This policy gave rise to a never-ending conflict over water between the Turkmen and Uzbek tribes.

One of the trunk canals carrying water to the southern regions of Tashauz Oasis is called Gazavat, which means "holy war." The name was derived from the almost unceasing sanguinary fighting on its banks between the Turkmen and Uzbek clans.

All the causes for the hostility that rent the working population of the oasis disappeared with the advent of Soviet power. National and tribal strife gave way to fraternal co-operation and peaceful socialist emulation between the Turkmen and Uzbek collective farmers.

Traces of the former way of life in the Khoresm Oasis, when the tiller of the soil and the shepherd were dogged on all sides by the threat of sudden attack, have remained only in the landscape of some places in the region. Along the roads of Tashauz Region there are quite a few ruins of ancient farms which bear little resemblance to the settlements of the Turkmen *dekhans* in the valleys of the Tedzhen and Murghab or to the villages in the Kopet-Dag foothills.

Formerly, the Turkmen nomads settled down in *auls*, the size of which depended on the number of felt *yurtas*. In Soviet years, the Turkmen *aul* has grown into a well-planned settlement with rows of sturdy little brick cottages, orchards, straight, tree-lined streets, clubs, reading-rooms and schools. In the past, the *dekhans* living in the oasis along the lower reaches of the Amu-Darya sought to build their homes in isolated farms with strong walls. The name for these farms was *kala* or fort.

The *kala* was usually built on the edge of a field over the *arik* irrigating it. The only way into the *kala* was through heavy wooden gates that were always locked. The house, whose size indicated the wealth of the master, stood against the inside of one of the walls. In front of the house was a small pool and a tree or two. Along the walls were awnings in whose shadow stood camels, horses and asses. The hay stored for the winter was piled on the awnings.

The poorer *dekhan* simply set up his felt *kibitka* in the compound and lived in it with the confidence that the strong, high walls of the *kala* would prevent the enemy taking him by surprise.

In Tashauz Region, as in all the other regions of Turkmenia, the collective farmers now live in new, collective-farm settlements where they have solid, strong, brick cottages. However, some *kalas* have remained as have the blocks of houses in Tashauz's old town. Everywhere, the old is still a neighbour of the new. The aim is to prevent it triumphing and force it to submit to the new. The preserved *kalas* are used as collective-farm warehouses or offices, or are adapted to serve as stockyards.

However, the remains of *kala* walls that can be seen here and there amid orchards and along the roads, and the medieval houses of old Tashauz are not the only signs left as reminders of the long and trying history of this ancient land.

There are many monuments of the past among the ruins of Old Urgench, the capital of ancient Khoresm. These ruins are near a district centre called Kunya-Urgench, which means Old or Ancient Urgench. In speaking of this Turkmen town, let us not confuse it with Urgench, the capital of Uzbekistan's Khoresm Region, which is 93 miles southeast of Kunya-Urgench.

5

The architectural memorials of Kunya-Urgench rank among the outstanding relics of the past that have survived in various places in Central Asia and are excellent material for a study of the culture of far-off days.

Of the memorials in Kunya-Urgench, the most valuable are the Mausoleum of Sheikh-Sheref, built most probably in the 12th century, the Mausoleum of Turabek-Hanum, built in the 14th century, and the famous Kunya-Urgench minaret, which, to all appearances, likewise dates back to the 14th century.

The 14th century was a period of relative peace for the peoples of Central Asia. Recovering from the bloody invasion of Genghiz Khan, the people of Khoresm once again set about growing cotton, rice, and musk-melons, while their rulers busied themselves with erect-

ing buildings which were supposed to be even more beautiful and stately than those that were razed by the Mongols. Nobody then knew that less than a century later, other conquerors, more bloodthirsty than the hordes of Genghiz Khan, would sweep across the land with the lame Tamerlane at their head.

The ancient structures of Kunya-Urgench show the architectural originality and maturity and the splendid building technique of the people of Khoresm.

Inside and along the façade of the Mausoleum of Turabek-Hanum are the remains of exquisite colour mosaics.

For a long time, the secret of the glazing that was used on many ancient buildings in Central Asia remained one of the unsolved enigmas of the past. Earthquakes, wars and time damaged most of the memorials in Samarkand, Bukhara, and Urgench, and totally ruined many others. Stately portals crashed to the ground, minarets tilted to an angle, or collapsed, and walls crumbled. Some structures began to resemble hills of clay, losing all semblance to a work of human hands. But wherever the glazing survived, it retained all its original colours and tones.

Soviet ceramics experts found the secret of this ancient glazing. In Samarkand they have fully restored the facing on the dome of the Mausoleum of Tamerlane (Gur-Emir), whose brilliant blue amazed travellers in the past. Other memorials are being restored.

The Mausoleum of Sheikh-Sheref is two centuries older than the Mausoleum of Turabek-Hanum. The form of its dome, which differs from the domes on most Central Asian buildings, is interesting. Usually the dome depicts a section of the canopy of heaven. But in the case of the Sheikh-Sheref dome, the shape is of a drawn cone.

Still more unusual for the architecture of Central Asian memorials is the form of the Kunya-Urgench minaret which, besides being cone-shaped as well, is 203 feet high. The winding stairs in this tower have 143 steps, each of which is almost one and a half feet high.

Compared with modern buildings, such a height is, of course, inconsiderable. But in the 14th century the minaret astounded and delighted not only the nomads, for whom the tallest structure was the "white" *kibitka* of their clan headman or *serdar*.

The tendency of the 12th-14th-century Urgench architects to give a cone-like appearance to tall structures was probably inherited from the earlier builders of the city. The dome of the Mausoleum of Fahr-ad-din-Razi, the oldest building in Kunya-Urgench, is a twelve-sided conical pyramid, that is to say, its shape may be taken as something between a pyramid and a cone.

The Mausoleum of Najmen-din-Kubra, built in the 14th century, is famous for the rare carving on the wooden entrance door and on the wooden panel above it.

Carving on wood was prized very highly in Khoresm as in other ancient states of Central Asia. The door and the panel of the Kunya-Urgench mausoleum are among the best examples of this antique art.

The delicately carved patterns on the square stone pillar above the tomb in this mausoleum and on the tombstone itself are noteworthy, too.

The memorials of Old Urgench only accidentally survived the devastation wrought by Genghiz Khan and Tamerlane. After conquering Khoresm in 1388, Tamerlane ordered his warriors to destroy the capital, plough the ground up, and sow barley on the site. Evidently, the fury of this grim despot exceeded the technical means at his disposal. He annihilated the people of Urgench (Gurganj) and levelled their homes with the ground, but it was beyond his power to obliterate the memory of this ancient city.

Not a single person or house was left in Old Urgench. But even after the death of the destroyer of Khoresm, wanderers approaching the ruins of the ancient city saw from afar the slender minaret shooting to the sky like an arrow in flight, and the domes of the mausoleums whose glazed facing sent forth such a radiance that it seemed as though bits of the heavens themselves had come down to earth to assume various geometrical shapes.

Had it not been for a calamity that left as much destruction in its wake as the hordes of Genghiz Khan and Tamerlane, ancient Urgench would have been restored as were other cities throughout Central Asia after the departure of the barbarian conquerors. As a matter of fact, the first steps in that direction were already taken by the Uzbek and Turkmen tribes that settled in the vicinity.

But they reckoned without the Amu-Darya. Formerly, the river had a channel draining to the Aral Sea and another running south-west past Kunya-Urgench to the vast Sarikamish Reservoir, from where the excess water sometimes flowed down the Western Uzboi to the Bay of Krasnovodsk. For some unknown reason, the river changed its course as a result of which the Aral Sea became its only outlet. The land to the west and south of Kunya-Urgench lost its source of irrigation. The crops forming a broad belt around the city began to wither and the people were compelled to abandon their once flowering fields and orchards.

## Chapter IV

1

The geographical position of Tashauz Region differs considerably from that of the other oases of Turkmenia—Murghab, Tedzhen and Chardjou. Tashauz is reached by the breath of the north. Only 250 odd miles separate Tashauz from the republic's southern regions and though this is not a great distance the climate in Tashauz is much sterner. Snow-storms are fiercer and last longer and the cold is more intense. Spring is usually two or three weeks late and the summer is correspondingly shorter. The explanation is not so much Tashauz's *northern* location as the fact that the delta of the Amu-Darya has no barriers against the northeast winds blowing from Siberia. Mari and Chardjou, on the other hand, are protected from these winds by the mountains and elevations of North Uzbekistan —the Auminzatau, Kuljuktau and Tamditau ranges, and the western spurs of the Tien Shan.

The mean annual temperature in Tashauz is 52° F.; in Chardjou and Mari it is 61°F. The difference in the winter temperature is especially marked: in Mari the absolute minimum is —4°F.; in Tashauz it is —22°F.

The summer heat, however, is approximately the same in Tashauz and Mari: in Mari the mean July temperature is around 86°F.; in Tashauz it is about 82°F. Yet in Tashauz Region the summer vege-

tative period is 28-30 days shorter than in Mari. This shorter period of vegetation prevents the Tashauz collective farms from growing fine-fibre cotton. They cultivate the same early-ripening varieties that are grown in most of Uzbekistan and in North Tajikistan. Nevertheless, Tashauz Region is one of the chief producers of cotton in Central Asia.

In addition to cotton, the collective farms sow sorghum, wheat and rice. The climate and soil ensure rich harvests of vegetables, melons and fruit. The Tashauz musk-melon has followers throughout the Soviet Union. The famous Chardjou musk-melon is really the Tashauz product, the name being accounted for by the fact that it was transported along the river through Chardjou.

Tashauz lucerne also enjoyed great renown. Besides being an excellent fodder plant, it is cotton's constant companion in the fields. Cotton-lucerne rotation is one of the prime conditions for increasing cotton yields. At one time the seeds of Tashauz lucerne were sold to other Soviet republics and exported abroad. During the Second World War, the collective farmers paid less attention to this valuable crop, but at the moment the situation is being restored to normal.

Lucerne improves the structure of the soil and, what is extremely important, facilitates the accumulation in it of nitrogen which the shoots of the cotton plant, especially the young ones, need as nourishment.

Another valuable property of lucerne, which makes it indispensable in the fields of Tashauz, Mari, Chardjou and other regions of Turkmenia where the ground is impregnated with salt, is that its roots penetrate deep into the soil and intercept the water with the mineral salts dissolved in it. Lucerne does not let these salts rise to the surface. It has been established that the soil on which lucerne grew for two or three years contains two or three times less salt. Furthermore, the subsoil waters flow at a much greater depth. That is very important because of the effect that subsoil waters and the salts they contain have on irrigated land when they are close to the surface.

In Turkmenia, salt-impregnated land can be seen everywhere. Nebit-Dag is surrounded by the huge Kelkor Salt-Marsh, which in

winter has the appearance of a lake. In summer it is so dazzlingly white that were it not for the heat it could be mistaken for a snow-blanketed field. During the summer, white powder lies on tremendous areas in the Murghab Oasis. Along the roads of Chardjou Region, whole fields covered with a white film loom into view in the most unexpected places. The powder is salt that rose out of the ground. The white film consists of salt that had been dissolved in the subsoil waters; it remains on the surface when the subsoil waters rise and evaporate.

In cases where the subsoil waters are deep in the ground, the salt in them is not dangerous to agriculture. Unhappily, in Turkmenia's oases the subsoil waters are usually close to the surface and if the land is abundantly irrigated the moisture in the soil, by virtue of the law of capillary attraction, rises together with the salt. After the moisture evaporates, the salt hinders the development of plants, destroying crops and trees.

The faster the evaporation, the more salt accumulates in the soil. In the hot and dry climate of Central Asia evaporation is very high During the summer it exceeds the rate of precipitation many times. In Tashkent, for instance, evaporation is three times higher than precipitation. In Tashauz the proportion is 30:1, while in certain summer months it is 100:1 and even 200:1.

As it accumulates in the upper layers of the soil, salt not only ruins crops but also damages technical installations and destroys houses. Salt corrodes iron, causes wood to rot, and converts even baked bricks into dust. Many of the thick clay walls of the ancient buildings look as if they have decayed along the bottom. That is the handiwork of salt. The foundations of buildings, water-piping, the underground part of poles, and all other structures need special insulation to guard them against the harmful action of salt. Any time the people of old Khiva or Bukhara lacked salt-resisting stones as foundation material, they used dried bulrushes, which served as insulation for most of the structures and houses. That is the reason for the short life of many ancient buildings. The usual surmise was that all ruins are the aftermath of destructive wars or earthquakes. But in Central Asia that is not always the case. Many

houses and walls fell to pieces simply because the salt content in the ground they were built on exceeded the permissible level.

A planned, systematic fight was started against the salt in Soviet years. Proper lucerne-cotton rotation results in richer harvests and helps to force the subsoil waters deeper underground. In other words, a proper crop rotation is contributing to the highly important task of desalting the land.

Another effective means is to wash the ground. During the winter and early spring, when temperatures are low, water is let into the salt-covered fields. That dissolves the salt and as the water sinks into the soil it carries the salt away with it. There is a local saying that in cold weather water "drives" salt into the ground. If this salt-saturated water is caught in special drainage canals and collectors, that would be tantamount to washing the ground.

Correct irrigation, regular lucerne-cotton rotation, and the construction of waste-water drainage canals and collectors will rid the Tashauz collective farms of salt-ridden ploughland, that accursed heritage of the past, and enable them to develop thousands of acres of land which were forsaken by the beys and khans because they lacked the skill to irrigate them properly.

A 310-mile-long general collector, which carries waste water from most of the districts in Tashauz Region and many districts in Uzbek Khoresm, was built in 1954. Known as the Daryalik Collector, because the dry channel of the Daryalik was used for the purpose, it practically solves the problem of draining subsoil waters in Tashauz Region.

2

The whole country knows of the work and achievements of the famous Tashauz collective farms. When the movement for a new irrigation system was started in regions where crops depend on water from canals, the extensive fields of Tashauz Region were chosen to test and prove the unquestionable superiority of the new method.

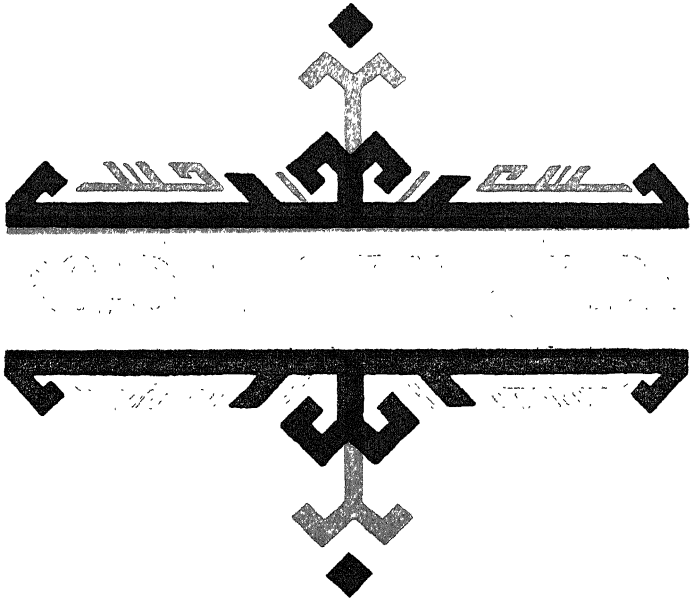
In Kunya-Urgench District stands the Bolshevik Kolkhoz, Turkmenia's biggest cotton-growing collective farm. In 1950, it had 3,000 acres under cotton and three years later it extended

that area to 5,000 acres, receiving an annual income of over 17 million rubles.

Twenty-eight members of the Bolshevik Kolkhoz were decorated with the title of Hero of Socialist Labour for raising rich harvests of cotton; 400 collective farmers were awarded Orders or medals. In 1951, Ashir Kakabayev, the chairman of the farm, and Islam Toiliev, a team leader, received the gold Hammer and Sickle medal for the second time. That year Islam Toiliev's team raised a record cotton crop. The Bolshevik Kolkhoz is justly called a school of higher agrotechnique. It was not so long ago that most of its land was made up of salt-marshes and wildernesses of camel-thorn. Through the application of advanced Soviet agrobiology, the collective farmers began to wrest an ever-increasing area from the desert, changing salt-marshes into fertile arable land.

The Bolshevik Kolkhoz, Kunya-Urgench District, Tashauz Region, must not be confused with a collective farm of the same name in Ilyali District, Tashauz Region. The latter won nation-wide fame when it increased the area of its arable land a hundredfold by using a new system of irrigation. That farm's experience was described by its chairman, Hero of Socialist Labour Rejepkuli Atayev. He said:

"In the old days we got our water from six canals, but now we are using only two. Tractors and other machines have helped us to win a huge expanse of land. Under the old system of tiny, crooked irrigation ditches, when the fields rarely exceeded 13 acres and their length was not above 650 feet, tractor efficiency was only 65 per cent. At present, lengths have been extended to almost 4,000 feet. That enables the tractor to operate at full efficiency and saves quite a lot of fuel."

There are so many successful collective farms in the region that there is neither the need nor the possibility to speak of all of them here.

In the course of the thirty odd years since the founding of the Turkmen Soviet Socialist Republic Tashauz Region has grown out of a remote province of the Khiva khanate into one of the Soviet Union's advanced cotton-producing areas.